

Sustainable Development Beyond Growth

GS E&C Integrated Report 2022



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About This Report

GS E&C believes that it has to create stable financial values through business activities while pursuing environmental and social values as a global E&C company. We are accelerating ESG (Environmental, Social, and Governance) management by carrying out our environmental and social responsibilities to the fullest, guided by the vision of becoming a “Sustainable Global Company.” Through our 11th Integrated Report, we intend to disclose information on our financial and non-financial performance achieved through ESG management to the stakeholders with transparency.

Reporting Principles

This report was prepared in compliance with the core Global Reporting Initiative (GRI) Standards.

Reporting Boundary

The headquarters, 192 business sites and major supply networks at home and abroad

Scope of Reporting

Economy (Korean International Financial Reporting Standards, K-IFRS), Society, and Environment

Reporting Period

January 1, 2021 - December 31, 2021
(Including parts of key performance in the first half of 2022)

Reporting Cycle

Annual (The previous report was published in June 2021)

Assurance of Report

This report has been verified by an independent assurance provider to ensure the credibility and integrity of its preparation process and contents. The result of this third-party assurance engagement can be found on page 96 - 97.

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We create the value of new life and dream about tomorrow with customer.

A strong willingness to accomplish the sustainable development with social responsibility is the management concept of GS E&C and the foundation of value system. Based on these, GS E&C will leap toward a global top tier construction company over the best in Korea and will become a company to provide the best value to the customer.



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Message from the CEO

Dear Stakeholders,
I would like to extend my sincerest gratitude for the unwavering support and encouragement for GS E&C.

In the past year, we promoted change and innovation in response to the transition ushered in by the 4th Industrial Revolution and the climate change crisis. Leveraging our cutting-edge technology and brand value, we made many achievements in the field of construction including the housing business segment, and simultaneously promoted the expansion of new business in line with the trends of digitalization and decarbonization. In this regard, we have foreshadowed our intent to evolve from the simple construction business into a total solutions company, and the achievements are expanding visibility.

To meet the increased societal expectations arising from our financial achievement, the ESG trends, and the Severe Accident Punishment Act, we have been continuously striving toward improving corporate sustainability by reevaluating the company-wide management system through the leadership of the ESG committee as well as by creating values in the environmental, social, and governance sectors. In line with the worldwide efforts such as the Paris Agreement for the reduction of greenhouse gases, we have accelerated the development of eco-friendly technology through reorganization of the R&D organization to mitigate the influence of climate change, and proactively seek and promote eco-friendly business opportunities using CCUS and hydrogen-related technology in new emerging businesses such as renewable energy, waste, water treatment, battery recycling, etc., in order to minimize the influence on climate change. Along with these efforts, we are working to create environmental value by managing the environmental risks through company-wide activities such as reduction of greenhouse gases, reduction of waste generation and water use, etc.

Moreover, we have been expanding the investment on safety including safety at business partners' work places by measures such as improvement of various safety management systems, strengthening the preliminary inspection, practically applicable education to enhance the capabilities for prevention of industrial accidents, and to create a safe working environment in accordance with elevated construction safety standards. We have also been providing various forms of support and communicating with our business partners and in addition to the existing social contribution activity, we pursue accompanied growth with local communities and business partners through supporting cultural artists and the athletic industry that have been facing hardship due to COVID-19. We have also introduced measures to secure the efficiency and professionalism of the board of directors' operations by operating a committee composed of directors verified for their expertise under the board of directors for the establishment of a transparent governance system.

We are fully committed to following global guidelines for sustainable management such as the Ten Principles of the UN Global Compact, and will continue to use our influence to improve the sustainability of our entire value chain. Furthermore, we will strive to communicate achievements in this direction with our stakeholders to continue growing as a representative sustainable company. Your continuous support and interest will be highly appreciated.

Thank you.



July 2022
 GS E&C CEO Byeong-yong Lim

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11-year History of the Integrated Report

GS E&C has been reporting its financial and non-financial performance faithfully through its annual integrated report since 2011, with the objective of disclosing its sustainability management activities and performance transparently to a variety of stakeholders. Marking the publication of the 11th integrated report, here we look back on the 11-year history of our integrated reports, and we renew our commitment to pursuit growth as a global E&C company, disclosing our efforts for sustainability management transparently.



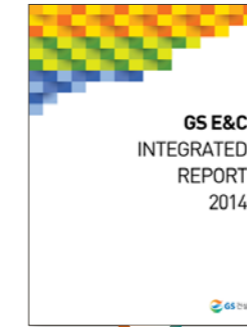
2011
Published the First Integrated Report



2012
Applied GRI G3.1 Guidelines



2013
Developed the GS Q-HSE (Safety, Environment, Quality) Audit Program



2014
Applied GRI G4 Guidelines



2015
Reported UNGC Advanced Level



2016
Improved communication with stakeholders through interviews



2017
Commenced reporting on the basis of GRI Standards



2018
Certified for the education and training management system (ISO 29993:2017)



2019
Listed on DJSI Asia Pacific for 10 consecutive years



2021*
Published the Tenth Integrated Report



2022
Enhanced disclosure of Global Standards (TCFD, SASB, etc.)

*From 2021, our report has been renamed based on the year of publishing and not on the reporting year.

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Business Overview

GS E&C was founded on December 19, 1969 as Lackhee Development Co. (LDC), and after the change of corporate name in March, 2005, we are now known by the name GS E&C. We consider customer values as our top priority in all business fields including Architecture/housing, plant, infrastructure, Eco, new business. As a leading ESG company, GS E&C will pursue growth as a global top tier E&C company that promotes sustainable values all over the world.

27 
overseas subsidiaries and branches
 (as of Dec. 2021)

Overseas branches
10 branch offices in **10** countries

Italy, Algeria, UAE, Saudi Arabia, Bahrain, Kazakhstan, China, Singapore, Vietnam, Indonesia

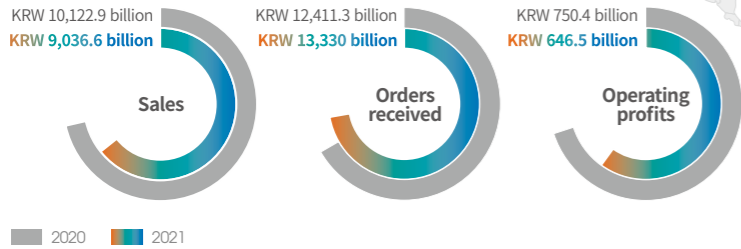
Overseas subsidiaries
17 subsidiaries in **13** countries

UAE, Saudi Arabia (2), Philippine, India, China, Vietnam (2), Thailand, Indonesia, Australia, Spain, Poland (2), UK (2), USA

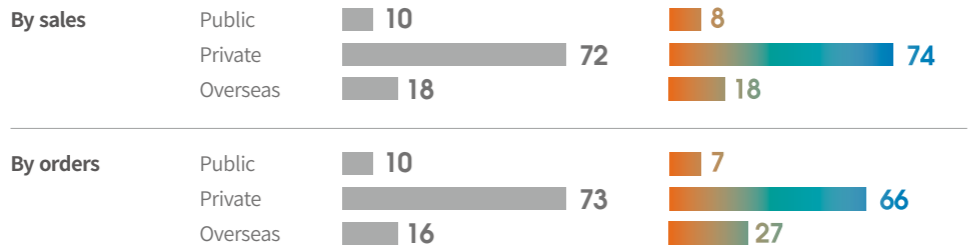
General Information

(as of Dec. 2021)

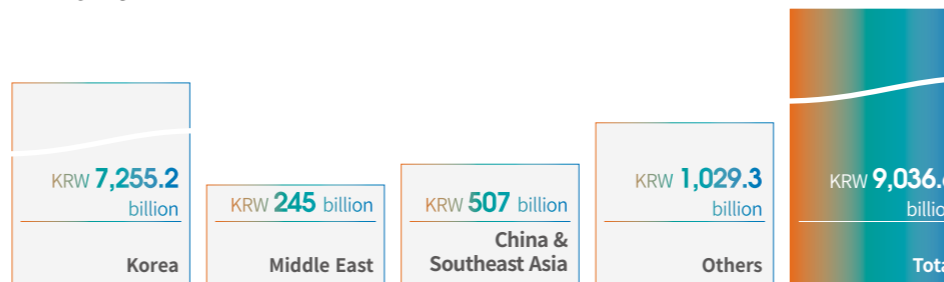
Company name	GS E&C
Date of establishment	Dec. 19, 1969
Total assets	15,183.7 billion
Credit rating	A+(Corporate Bonds)
No. of business sites	192
No. of employees	5,433



Classification



Sales by Major Market



*Others: Sales standards of Australia, Poland, UK, etc.

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Introduction of Business Sector

ARCHITECTURE / HOUSING

Business Areas Residential facilities, office facilities, cultural / leisure / sports facilities, clean rooms / production / logistics facilities, remodeling, and domestic development projects

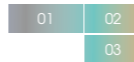


Overview

Our construction business deals with all types of structures including houses, office facilities, and office facilities and we have expertise in construction management as well as differentiated technology applicable to state-of-the-art office buildings, factory facilities, and Internet data centers, etc. In the housing business, we are planning and supplying premium residential products based on brand awareness of Xi and our technology, in line with changes in consumer perception and demand. Furthermore, we suggest lifestyles for our customers by establishing a two-way communication platform as well as providing residential spaces.

Looking Ahead

As the architecture business is getting larger and more advanced, the demand for state-of-the-art office buildings and hi-tech equipment production facilities, such as semiconductor and LCD factories, are steadily growing. Through accumulated know-how arising from experience working on large-scale projects and differentiated technology, GS E&C is expected to grow continuously by actively participating in the architecture business. The demand for reconstruction project is expected to increase continuously owing to the deterioration of metropolitan areas and old downtown areas as well as the housing supply policy of the government including the Third New Town, and accordingly we will take an active part in various projects in order to maintain our market status and ensure business stability.



1. **Songdo Xi Crystal Ocean**
 Construction period : Jan. 2021 ~ Jun. 2024
 Construction scale : No. of residential units_1,503 units
2. **Gaepo Residence Xi**
 Construction period : Nov. 2019 ~ Feb. 2023
 Construction scale : No. of residential units_3,375 units
3. **Brighten Yeouido**
 Construction period : Jul. 2019 ~ Apr. 2023
 Construction scale : No. of residential units_1,303 units

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Introduction of Business Sector

New Business

Business Areas Modular houses, recycling of waste batteries, smart farming, etc.



Overview

GS E&C is expanding its business to various fields including modular (prefab) housing, recycling of secondary batteries, smart fish farm and other related businesses. The modular (prefab) method, unlike the preexisting construction method, is a construction method in which structure and building materials are produced to an extent in a factory before being transported and completed on-site. Then, the building is completed on-site. GS E&C has developed the capabilities to respond to the modular construction market in various shapes and purposes through taking over Europe's leading modular construction companies, establishment of subsidiaries in Korea, etc. Since there has been a rapid increase in the volume of waste batteries in accordance with the expansion of the EV and electric mobile market, we established ENERMA Co., Ltd. in 2020 to advance into the Lithium-ion battery recycling industry. Construction of the factory is in progress at the general industrial complex in Pohang-si, and it is planned to commence commercial operations from 2023. Moreover, in order to overcome the issues caused by global warming and environmental contamination, we have been participating in the Busan Smart Fish Farming Cluster Project based on our water treatment technology, and have prepared the basis for advancement into the smart farming of the future.

Looking Ahead

Modular (prefab) construction has a variety of merits such as eco-friendliness, shorter construction periods, and fewer safety issues, and its demand for the market is expected to grow further as an alternative to existing construction methods. GS E&C will grow as a new global leader in modular (prefab) construction using various strengths and advanced technologies. In line with the rapid growth of the global EV market, the market scale of the battery recycling business is expected to grow rapidly. GS E&C is planning to pursue growth as a secondary battery company by securing next generation eco-friendly technologies through continuous technical development on the entire life cycle such as production of precursor, etc. including the recycling of Lithium-ion battery. Moreover, GS E&C is pursuing new challenges with the farming of Atlantic salmon to provide fresh and clean salmon to domestic consumers without any issues of antibiotics, and these technologies and efforts will lead the domestic eco-friendly farming industry in the future.



1. **Precast Concrete (PC) plant in Eumseong-gun, Chungcheongbuk-do**
Production scale :
Production capacity of 170,000m³/year
2. **Modular houses supplied by Danwood S.A**
3. **Smart Fish Farming Cluster in Busan**
Operating period :
Nov. 2022 ~ Oct. 2042
Production scale :
Production quantity of salmon: 500 TPA (Ton per Annum)

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Introduction of Business Sector

PLANT

Business Areas Oil, gas, petrochemical plants, etc.



Overview

Plant construction involves complex projects that require the basic and detailed design of facilities related to oil, gas, petrochemical, etc., the procurement of materials, the final completion of construction, and various other services encompassing feasibility studies, maintenance, and operation. GS E&C is one of world class EPC Players in oil refinery plant, which commenced with the CDU Expansion Project conducted by GS Caltex in 1979 and the successful completion of an advancement facility for RFCC (Residual Fluid Catalytic Cracker) in 1992. We have successfully completed various projects in many countries based on our experience and superior technology. In a field of gas plants, we began with the Incheon LPG/LNG terminal in 1997 and Shantou LPG terminal in China based on our capabilities in gas processing facilities, LNG terminal, etc., and we have successfully completed various projects in the Middle East, Asia, etc.

Looking Ahead

Even with the slowdown of economic growth worldwide, petroleum consumption is estimated to have increased in general, and especially, since the economic activity has resumed in accordance with the abatement of COVID-19, the market demand for petrochemical plants is expected to form a relatively favorable trend. Based on our experience in global plant projects and continuous costs improvement activities, we are expanding our business from high-risk low-profit EPC lump sum¹⁾ projects to higher value-added projects such as PMC²⁾, FEED³⁾, and investment development. Furthermore, we are planning to secure competitiveness in Carbon Neutrality and hydrogen business for the expansion of our business value chain in line with the recent vitalization of eco-friendly business.

1) EPC Lump Sum: Lump sum contract for design, procurement, and construction
 2) PMC (Project Management Consultancy): Comprehensive project management
 3) FEED (Front-End Engineering Design): Basic design

01	03
02	

1. Turkey STAR Project

Construction period : May 2013 ~ Dec. 2019
 Construction scale : 214,000 BPSD Refinery Complex

2. Y2C (Yeosu No.2 Complex)

Construction period : Aug. 2018 ~ Jun. 2021
 Construction scale : NCC 800,000 tons/year, BRU 400,000 tons/year, HDPE 200,000 tons/year production facility construction

3. MFC Project (Jeonnam)

Construction period : Aug. 2018 ~ Mar. 2021
 Construction scale : Ethylene 700,000tons/year, Propylene 350,000tons/year, Polyethylene 500,000tons/year

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Introduction of Business Sector

INFRASTRUCTURE

Business Areas Roads, bridges, railways, ports, dams, subways, etc.



Overview

Through the infrastructure business division, GS E&C constructs basic facilities for other industries by creating new spaces of public interest in the natural environment. In the domestic market, we have been participating in numerous public and private civil engineering and SOC projects based on the accumulated construction know-how and the technologies developed and have been contributing to the national economy and balanced land development. In the case of overseas markets, we have advanced to the Vietnamese market and are in the early stages of a new city development project. Furthermore, we are carrying out several subway construction projects based on our outstanding technology and experience in Singapore. Lastly, we are contributing to making construction sites safer and more advanced by applying smart construction technology and automated construction equipment.

Looking Ahead

With the amendment of the domestic Act to allow private investments in public facilities, the infrastructure business is expected to expand in Korea. We are planning to focus on winning infrastructure projects in the private sector to promote private investment projects, and we have already made some achievements in this direction, including being designated as a priority enterprise in the Wirye-Sinsa Cityrail Project, procurement of rights to manage and operate the Seoul-Munsan Expressway, etc. In the overseas business, we are trying to continue the winning streak participating in more sustainable private projects and carrying out development suggestion projects. Moving forward, we plan to take part in bidding in cooperation with leading foreign companies and make profits in new markets to enter markets in advanced countries such as Australia's PPP projects, etc.



1. North East Link(Australia)

Construction period :
86 months after the commencement of construction
Construction scale :
6~8 lane road and tunnel construction for a total length of 6.5km

2. NSC N101(Singapore)

Construction period :
Dec. 2018 ~ Jun. 2027
Construction scope:
Total of 900m in the town center within the beach road region in Singapore, 1km overpass construction on Jaha Highway

3. Construction of Busan North Port 1st stage redevelopment project connection bridge

Construction period :
May. 2020 ~ Jun. 2022
Construction scale :
Construction of 1 bridge



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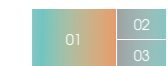
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Introduction of Business Sector

ECO Business

Business Areas Renewables, nuclear power, power transmission / distribution, waste treatment, water treatment, etc.



1. Construction of the Jeju Environment Resource Circulation Center (Jeju)

Construction period : Jul. 2016 ~ Nov. 2019
Construction scale : Incineration facility 250 tons/day x 2 units, steam turbine power generator 19.2MW

2. Construction of industrial water supply (SWRO) in Daesan Coastal Industrial Zone

Construction period : Nov. 2021 ~ Aug. 2024
Construction scale : Seawater desalination facility 100,000m³/day, intake pumping station 210,000m³/dat, ocean pipeline 1.10km, land pipeline 23.43km

3. Ukraine Zakarpattia Solar Power Generation Project

Operating period : Mar. 2020 ~ Feb. 2024
Construction scale : 24MW Solar power generation facility

Overview

In the energy business, we pursue the development and operation of renewable energy and electric power production facilities as well as the transmission / distribution of produced electric power. GS E&C has been responding preemptively to the change of the energy paradigm based on our power plant construction know-how and various technologies, and has successfully completed conversion of the business portfolio into the renewable energy development business. We have differentiated competitiveness in waste processing, and lead the sewer / waste advanced processing market based on our top-notch technology and construction capabilities. We have the best domestic performance records in waste processing as demonstrated by projects such as the Jeju Resource Environment Center, Mapo Resource Recovery Facility, etc., and have made outstanding achievements in the construction and operation of facilities for advanced processing and disposal of wastewater, like the Jungnang Sewage Treatment Center, and waste water processing at LCD production factory, etc.

Looking Ahead

The global energy market has shown a trend of increasing business scale based on the expansion of renewable energy technologies and the rising interest of governments and markets in ESG. These trends are expected to accelerate the change of the energy paradigm. GS E&C plans to promote the renewable energy business actively with related development and investments. The demand for the environment business is also expected to increase leading to more investments into domestic and international environmental facilities, so we predict the expansion of opportunities to receive new orders. GS E&C plans to increase the reception of orders with high profits through continuous cost improvement activities and risk management, and to expand the environment business sector based on the business performance.

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싱가폴 응웁퐁 병원

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ESG Strategy

GS E&C has established the company-wide ESG management strategy embracing the interests of various stakeholders in order to build a satisfying world for everyone. As ESG management is of growing importance to society, GS E&C aims to become Korea’s representative ESG company by fulfilling its corporate social responsibility to the fullest. With the establishment of objectives to achieve the company’s vision of “becoming a sustainable global company”, we will pursue the sustainable development of our company and society by setting the strategic direction and objectives for each area of environment, society, and governance. Furthermore, we hope that GS E&C’s efforts will contribute to the sustainable development of the world as well as the sustainability of the company in connection with the UN Sustainable Development Goals (SDGs).



Enterprise-wide ESG network



Stakeholders



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Sustainable Value Creation

Input

Capital	KRW 4,872.7 billion	Purchase of major raw materials	KRW 1,842.1 billion
R&D expenses	KRW 34 billion	Energy consumption	3,689 TJ
No. of employees who have completed training at the Safety Innovation School	(Accumulated) 19,039 persons	Water consumption	2,691,483m ³
Management support fund	KRW 39 billion (Based on average annual balance)	Investment in social contribution activities	KRW 5.91 billion

Strengthening Competencies with Top Talents and Core Technologies



R&D Innovation

Technologies developed 25 cases | Joint patent registrations 5 cases

Talent & Corporate Culture Enhancement

No. of participants in the "Study with ME" program 81 persons | The 1st GS Group Hackathon held

Contribution to Social Development through Strategic Social Contribution



Education Empowerment

No. of welfare beneficiaries 5,784 persons | Playground of Dreams and Hopes Completed the 38th Playground of Dreams and Hopes | After-school Classroom No. 22 (Accumulated)

Shared Growth with Partners and Win-win Management



Competitive Advantage

Orders received KRW 13,330 billion | Smart Fish Farming, Clean Production of Marine Products

Trusted Partnership

Highest grade in agreement performance evaluation by the Fair Trade Commission in 2021 | Highest grade in win-win growth index managed by the Accompanied Growth Committee

Eco-friendly Architecture at Safe Workplaces

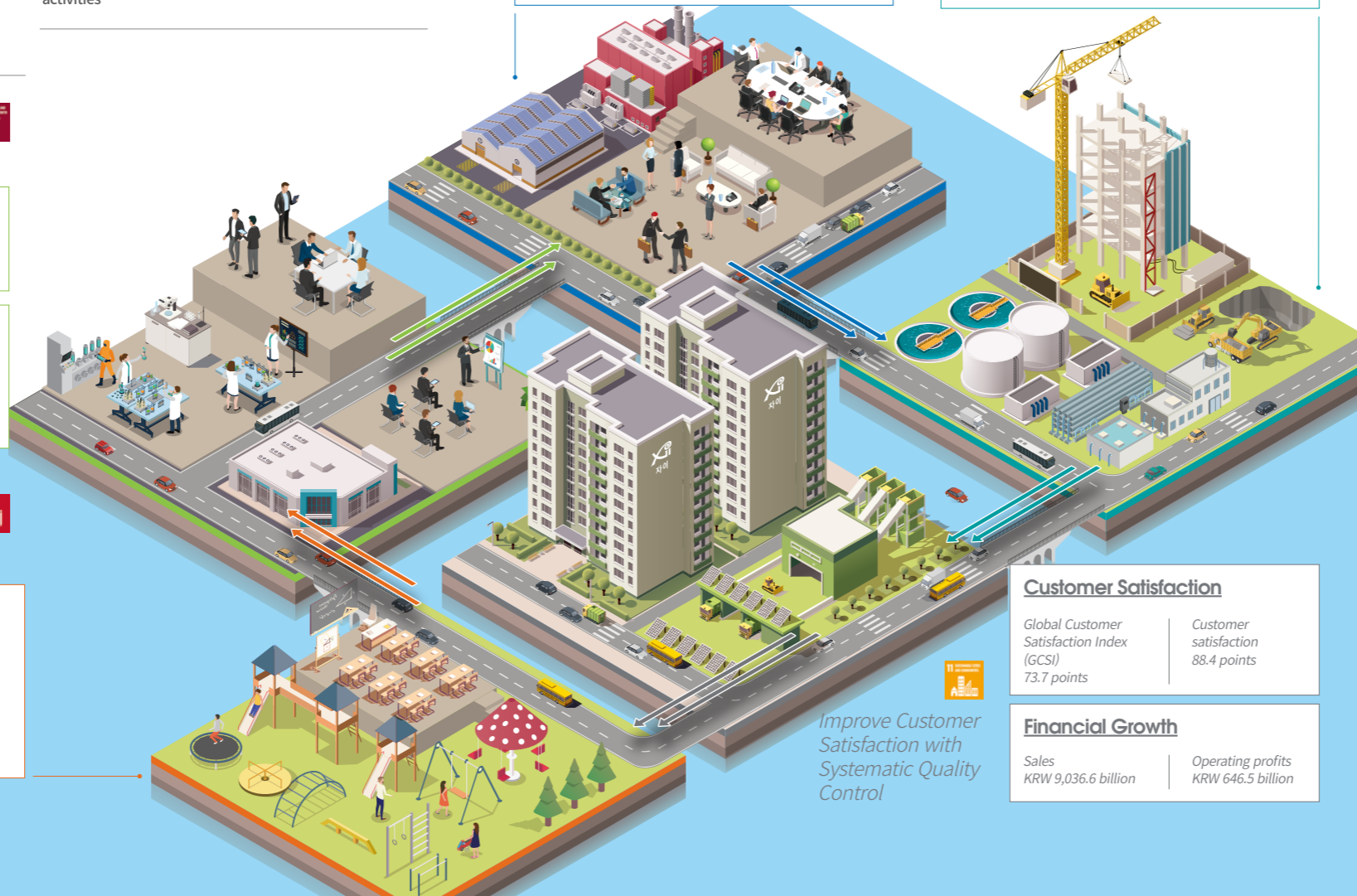


Green Construction

GHG reduction 18,693tCO₂e | Rate of waste recycling 99.8% | Rate of green purchases 9.5%

Safety First

Occupational accidents 1cases | Construction/Technology accidents 0cases



Customer Satisfaction

Global Customer Satisfaction Index (GCSI) 73.7 points | Customer satisfaction 88.4 points

Financial Growth

Sales KRW 9,036.6 billion | Operating profits KRW 646.5 billion

Improve Customer Satisfaction with Systematic Quality Control

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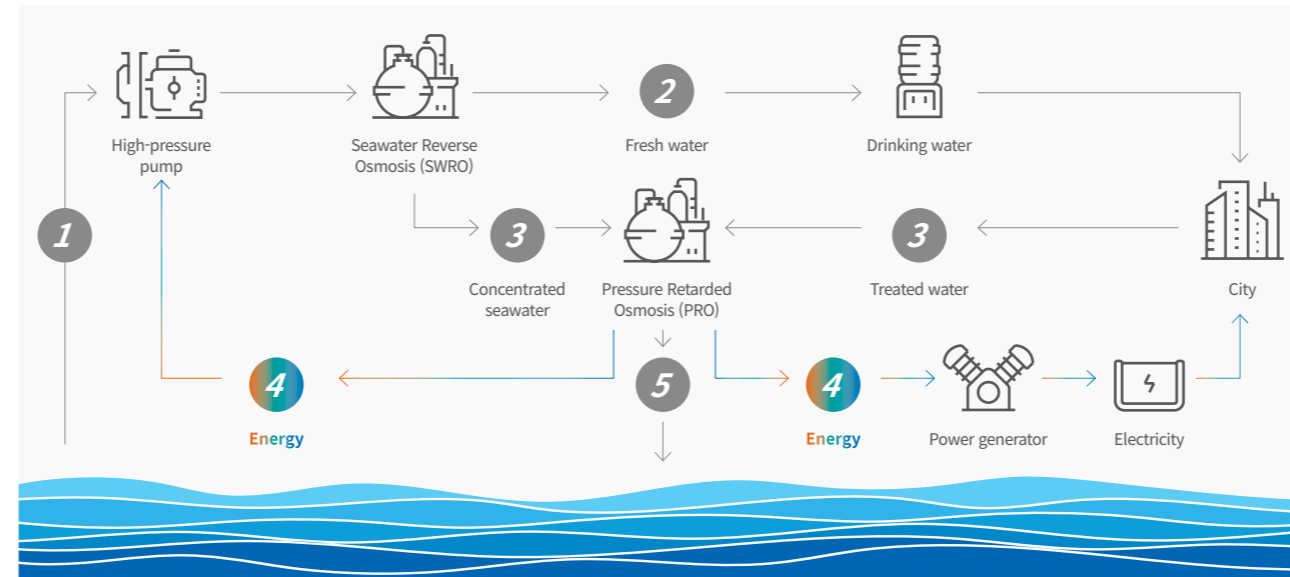
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Eco-friendly New Technology

Working with various R&D organizations, GS E&C launched RIF Tech (Research Institute for Future Technology) in 2022 to emphasize the company-wide development of eco-friendly technologies. GS E&C is preparing for the future through consistent and continuous investments in R&D aiming to find sustainable value. We have strengthened our competitiveness by securing core technologies for the new business areas that are pursuing and productivity improvement technologies in the core business.

Next Generation Desalination Plant Process



On-site Water Saving Technology

GS E&C is currently running test application of eluted ground water at Northern Suwon Xi Rexvia site, and is planning on applying this method in the Incheon line 1 extension construction site. Through standardization of the water saving technology, GS E&C expects more than 50% of water saving effects at the construction site.

Site-Saving Sewage Treatment Technology Using AGS (Aerobic Granular Sludge)

To prepare the corresponding technology for the retrofit market in accordance with the strengthened water quality regulations and the aging of sewage treatment facilities, GS E&C develops energy saving sewage treatment process based on AGS technology and applies it to the on-site system.

Biogas Facility Modularization Technology

GS E&C is developing biogas modularization technology in response to the need to accelerate the expansion of distributed energy. Based on this technology, we expect to build an energy ecosystem and apply it to related businesses such as food waste, sewage sludge, slaughterhouse waste and livestock waste treatment, which are unused biomass.

Anammox Process Technology

GS E&C is in the process of developing a high-concentration nitrogen (ammonia) removal technology using specific microorganisms to save energy, bring down environmental contamination caused by sewer/waste water treatment, and respond to the government's water quality strengthening policy and related regulations. This technology, compared to the conventional process, has the effect of reducing aeration energy expenditure and biomass creation by 60% and 80% respectively, and does not require any external carbon sources.

Technology Using Tube for Waste Reduction and Productivity Improvement

GS E&C is engaged in R&D for a technology to reduce carbon emissions and waste production by using inflatable rubber tube. By applying inflatable rubber tubes, which are reusable, we expect to improve the environmental value by increasing in productivity as well as a reducing waste production through minimizing on-site form-work and support fixtures.

Technology for Hydrogen Gas Conversion of CO₂ Based on Microbial Electro-synthesis(MES)

We select a microbial community to feed on CO₂ and electrons to produce hydrogen and develop a technology for optimization of high-density microbial structure optimization technology through cathode improvement for better CO₂ conversion ratio (up to 50%). We expect the hydrogen gas production maximization technology through the production and test of microbial electro-synthesis(MES).

Low-energy, Eco-friendly Seawater Desalination Technology

In line with the increasing market demand for eco-friendly seawater desalination technology, GS E&C is developing a salinity difference energy recovery system and technology for reduction of marine environmental pollution from desalination of seawater in cooperation with Singapore Public Utilities Board (PUB). We expect to save 25% of energy and reduce 40% of salt concentration using this technology.

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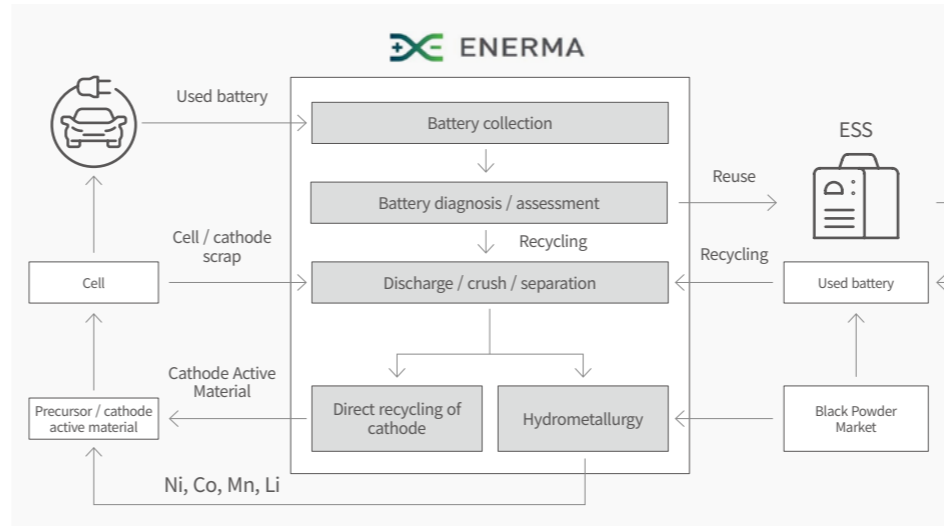
Eco-friendly New Business ENERMA

Lithium-ion Battery(LIB) Recycling Business

In order to meet the domestic and overseas demand for rare metals and as part of the effort to enter the rechargeable battery recycling market following future business trends, GS E&C founded Enerma Inc. on October 20, 2020. We reduce the need to develop new mines and contribute to carbon neutrality by collecting 5,000 tons of key cathode materials such as nickel, cobalt, lithium, and manganese from used LIB every year.



In 2020, we entered into a technology partnership with leading enterprises so as to ensure access to key technologies and invested KRW 140 billion in the Yeongilman Industrial Complex 4, Pohang, planning to start commercial operation in 2023. In the future, we will strive to develop not only recycling but also using reusable EV battery packs and other eco-friendly techniques to become a battery material company that leads the market with both technology and quality.



Secondary battery recycling process

Market Status

The global sales of electric vehicles are expected to grow rapidly to reach 22.4 million vehicles in 2030 with a replacement ratio of 35%. Thus, the demand for rare metals used in cathode active material, a major raw material of LIB is expected to increase tremendously, and it has become essential to strengthen recycling to overcome the restrictions imposed by limited resources. We expect the globalization of the material business and the diversification of supply chain would be accelerated.

Leading Company in LIB Recycling Business

ENERMA Co., Ltd., established on Oct. 20, 2020, is the largest domestic company engaged in the recycling of LIB and it has established the world's first automated disassemble robot system for EV EOL(End-of-Life) battery packs and develops/possesses substantiated eco-friendly and high efficiency recycling technology. Furthermore, not only does the hydrometallurgy technology secured by ENERMA Co., Ltd. to extract the raw material of the finest battery grade has eco-friendly characteristics such as high metal recovery ratio, low energy consumption, low discharge of exhaust gas, and more. It also diagnoses/evaluates the spent batteries for possible reuse, creating eco-friendly value through ESS supply in connection with the solar power business in the ECO business sector of GS E&C and ESS supply at the construction site for the architecture/infrastructure business sector. Moreover, based on the plant design experience of GS E&C, it is possible to construct a competitive eco-friendly plant with optimized architectural design and stabilization.

Achievements and Direction of Business Promotion

Beginning with the introduction of new technology ENERMA Co., Ltd. is accelerating their plant construction efforts through their own R&D and architectural design capability. We plan to advance into the battery material industry through ENERMA Co., Ltd. by retrieving key materials of cathode active material from spent lithium-ion batteries. Furthermore, we will contribute to Carbon Neutrality by lowering the carbon emissions during the production of raw materials for cathode active material through the recycling of material from 6.8 kg/kg cells to 2.4 kg/kg cells. Currently, the construction of the plant is in progress at Yeongilman Industrial Complex 4, Pohang-si, and it is planned to commence the commercial operation as of 2023. Furthermore, ENERMA Co., Ltd will continue to grow as a specialized company in eco-friendly battery materials and management that prioritize the environment and fulfills its social responsibility as it creates future value.

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Eco-friendly New Business *Smart Fish Farming*

Smart Fish Farming, Clean Production of Marine Products

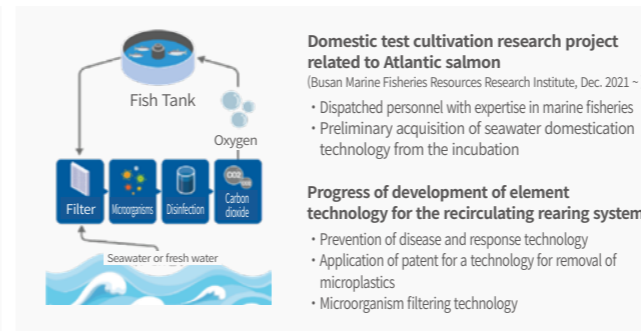
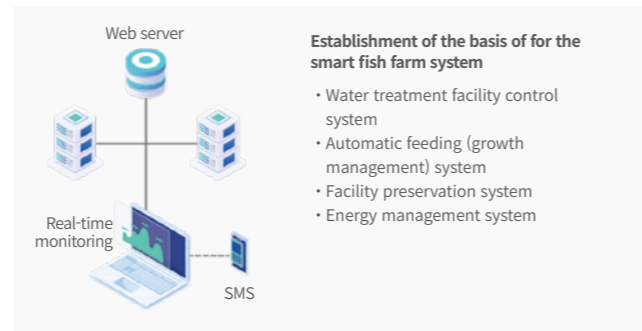
GS E&C is entering new businesses by fusing its construction business and capabilities in renewable energy. GS E&C and one of its subsidiaries, GS Inima, are putting forth efforts to commercialize innovative renewable energy technology for seawater desalination through international joint research with PUB (Public Utilities Board)(Singapore). The seawater desalination renewable energy innovative technology reduces power consumption by 20% or more while saving energy generated upon th operation of the seawater desalination facility. By applying this technology, it is possible to lower power operation costs by 20% or more by saving the energy required in operating the desalination facility. GS E&C has entered the future clean inland fish farm business through participating in the "Smart Fish Farm Cluster Construction Project" conducted by the Busan Metropolitan Government based on our experience and technology in the water treatment plant business. We will establish a smart inland fish farming system with our experience in water treatment plant construction. Our new business is expected to supply safe and fresh marine products and contribute to the protection of the marine environment.



Inside of the Smart Fish Farm



View of the Smart Fish Farm Control Room



Market Status

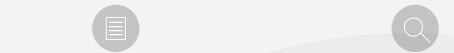
Lately, the government is reviewing a proposal for the introduction of telecommunication technology into the primary industry based on reference cases in Europe. Furthermore, in light of the recent global experience of logistics crisis due to COVID-19, the necessity for local industry has been emphasized in the interests of domestic food security. A major change is ahead in terms of maintaining the sustainability of the overall primary industry, and recently, as the low feed efficiency and global warming caused by gas emission in the livestock industry have gained the attention of consumers, blue food has emerged as the most reasonable choice as a sustainable source of animal protein. Among those, Atlantic Salmon is among top 5 imports of domestic fishery product and has experienced rapid growth in domestic consumption in the past few years but more than 98% of domestic salmon consumption is dependent on imports. Thus, for the first time in Korea, GS E&C has joined the business as a main operator of fish farms.

Leading Company in Smart Fish Farming

Imported salmon is mostly raised in fish cages in the seas of Norway or Chile. Recently, many countries have initiated efforts to solve the problem of diseases caused by global warming and contamination in coastal areas through regulating the production quantity of fishery products generated from farming. Countries with advanced fish farming technology such as Norway, Denmark, etc., are responding to environmental issues, and the Land Recirculating Aquaculture System is on the rise as a sustainable farming technology that can fulfill the demand for salmon To raise salmon that lives in cold and clean water in Korea year-round, where there are mild temperature recirculating technology is the most important capability. GS E&C is securing the core capabilities related to closed-type recirculating aquaculture technology with the highest circulation ratio. The closed-type recirculating aquaculture technology is the most advanced technology for minimizing environmental issues and supply safe fishery products to domestic consumers while protecting animal rights.

Future Promotion Plan

For the gradual advancement of fish farming business of the future, GS E&C participated in the "Busan Smart Fish Farm Cluster Construction Project" promoted for the first time in Korea. Currently in the test-bed with a goal to achieve completion by 2023, solar power, wind power, and ESS facility will be installed through the conclusion of a business agreement for a renewable energy fusion system with the government. Moreover, since this is the first Atlantic salmon farming project promoted under the domestic environment, test farming will be conducted prior to the commencement of full-scale business operation. In this regard, we are pursuing industry-academic cooperation for the prevention of diseases, application for a patent in food safety technology, and advancement of research. GS E&C has completed the preparations to introduce an independent technology to protect the ocean and to supply "clean salmon without the issue of antibiotics". Our technology and these efforts will lead the domestic eco-friendly fish farming industry in the future. After raising Atlantic salmon at the "Busan Smart Fish Farm Cluster" to prove and check the possibility of growth in the domestic market, we expect it will be possible to expand the business ex toward overseas markets.



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Eco-friendly New Business *Prefab*

Eco-Friendly Construction “Prefab” Market

GS E&C entered the eco-friendly modular construction (prefab) business to promote sustainable values based on future industries. In 2020, GS E&C acquired two advanced modular housing companies, Danwood S.A. and Elements Europe Ltd., to quickly obtain capabilities (prefab) construction. Additionally, we built an automated Precast Concrete (PC) plant to minimize dust, waste, and noise on construction sites and commenced commercial operation beginning in July, 2021. Furthermore, we use BIM techniques to prevent unnecessary design and to effectively reduce waste occurrence through calculating of the exact quantity and costs of construction material. As such, GS E&C will continue to strive to expand eco-friendly construction method in our business area.



Modular houses supplied by Danwood S.A

Market Status

As of 2021, the supply of detached house in Germany is 110,000 houses, and the prefab housing market takes 23% of the entire supply to form a market KRW 7 trillion despite the COVID-19 pandemic. The prefab housing market in Germany is continuously replacing the previous traditional technique with the support of government policy aiming to promote eco-friendly technology and the prompt provision of housing supply, and is maintaining an annual growth rate of 5% and is expected to grow to the scale of KRW 10 trillion. The housing market in UK has the goal of supplying 300,000 houses per year to resolve the housing crisis and the government recommends the modern method of construction (prefab) in order to provide eco-friendly housing supply and shorten construction timelines. In addition, it seems the demand for prefab products will grow continuously with the increase of build-to-rent market, easy for the application of prefab, in London and the downtown area, In the case of Korea, the scale of precast concrete market (PC) is approximately KRW 2 trillion with drastically increased demand after 2015, and it is applied to various fields such as underground parking lot, semiconductor center, logistics center, data center, etc. Also, there have been attempts to expand the application of PC technique in apartment housing led by LH(Korea Land & Housing Corporation) for the vitalization of PC in multi-story buildings. It is expected that the scale of global PC market led by Asia and Europe will grow with an annual average of 5% from KRW 158 trillion in 2020 to KRW 202 trillion in 2025. As shown above, the application of the prefab market and techniques led by developed ESG countries such as European countries and more is expected to grow continuously following on the trend of ESG policy.



Precast Concrete (PC) plant in Eumseong-gun, Chungcheongbuk-do

Leading Company in Eco-friendly Modular (Prefab) Construction

GS E&C is continuously developing various eco-friendly architecture techniques to reduce construction waste and GHG emissions. As part of efforts in this direction, GS E&C acquired two advanced modular housing companies (Danwood S.A. and Elements Europe Ltd.) to ensure relevant competence promptly, so that we could achieve growth as a leading company in eco-friendly modular (prefab) construction, which corresponds to the sustainable value. Furthermore, we built an automated Precast Concrete (PC) plant at Eumseong, Chungbuk, and the commercial production was commenced. Precast Concrete (PC) technique is used to assemble subsidiary materials such as column, beam, slab, wall, etc. manufactured in advance in the factory at the construction site. It has several advantages in that it helps to shorten the construction period as well minimize the dust, waste, and civil complaints caused by noise.

Achievements and Direction of Business Promotion

To become a leader in the eco-friendly modular (prefab) business, we are strengthening the businesses we are currently engaged in and plan to expand the region and business sector continuously. We will closely monitor the construction market in major advanced countries such as Europe, USA, etc., and we plan to respond promptly for leading the market situation and to find the opportunity for the expansion of prefab market.

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Materiality Assessment

As a global top tier company, it is vital for GS E&C to strategically prioritize a variety of ESG issues (Environment, Social, Governance) for efficient and intensive implementation of sustainable management. GS E&C selects essential material issues for business activities each year by analyzing the possibility and impact of ESG risk factors in a comprehensive manner. The Integrated Report 2022 presents relevant activities and performances and strategies to address the issues that may affect GS E&C, and in addition, the management background for the material issues is reported in association with our business approach and performance.

Materiality Assessment Process

Step 1 *Forming a pool of issues*

In 2021, a materiality assessment issue pool was developed as shown below, considering preexisting issues reflecting the management environment and industrial trends, international guidelines and material issues requested by the assessment institution, ESG standards, benchmarking, media analysis, etc.

Society	Environment	Corporate
<ul style="list-style-type: none"> • Workplace safety management • Talents recruitment • Fostering experts in duty • Diversity and equality of employees • Respect for human rights • Local community support • Social contribution • Establishment of a sustainable supply network • Improvement of customer satisfaction • Pursuing Labor-Management Cooperation • Information security management 	<ul style="list-style-type: none"> • Activities in response to climate change • Development of eco-friendly Technologies • Management of greenhouse gas and air pollutant emissions • Management of construction waste • Improvement of energy efficiency • Management of water resources • Conservation of bio-diversity 	<ul style="list-style-type: none"> • Promotion of ethical management • ESG management • Identifying engines for future growth • Development of innovative technologies • Establishment of an ESG risk system • Integrity of the governance structure

Step 2 *Materiality of issues / Impact analysis*

We evaluated the materiality of issues through a survey with stakeholders (Apr. 25 - May 8, 2022), media analysis, and benchmarking in order to prioritize the material issues among the issue pool, and analyzed the impact in the event of occurrence based on the results of the survey with stakeholders and the domestic and overseas ESG evaluation items. In particular, we conducted a survey and collected and reflected stakeholders' opinions so that a variety of internal and external stakeholders could participate in this process.

Step 3 *Selecting material issues*

By analyzing the importance of issues and the impact of the risks listed in our issue pool, we selected 10 material issues that require intensive management. In this report, we publish our risks and opportunities, management system, strategies and goals, major activities, and future plans in relation with each issue.

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TOP 10 Material Issues

Rank	Material issues	Page	Related GRI Indicators
1	Management of workplace safety	42~46p	Occupational health and safety (403)
2	Management of construction waste	29~31p	Waste water and waste (306)
3	Development of eco-friendly technologies	39~40p	Energy (302) Water (303)
4	Management of greenhouse gas and air pollutant emissions	32~38p	Emission (305)
5	Improvement of customer satisfaction	60~62p	Customer health and safety (416)
6	Activities to respond to climate change	37~38p	Energy (302)
7	Respect for human rights	53p	Human rights assessment (412)
8	Promotion of ethical management	75~78p	Anti-corruption (205) Environmental Compliance (307)
9	Establishment of a sustainable supply network	57~59p	Supplier environment assessment (308) Supplier social assessment (414)
10	ESG management	71~73p	General disclosure (102)



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Stakeholder Engagement

GS E&C defines major stakeholders considering the influence, level of interest, etc. of entities that may have an interest in our business performance and activities. We understand and analyze the issues of interest and demand through various channels for communication with each stakeholder. We carry out various activities such as stakeholders' forum, questionnaire, and on-site visits to communicate with stakeholders and develop mutual understanding, and put in efforts to establish a cooperative relationship based on active response.

Stakeholders' Groups and Communication Channel

Stakeholders	Issues of interest	Communication channel	Efforts of GS E&C
 <p>Customer</p>	<ul style="list-style-type: none"> - Products and services - Customer satisfaction - Communication 	<ul style="list-style-type: none"> - System for efficient management of civil complaints - Customer satisfaction survey - SNS / Xi TV 	<ul style="list-style-type: none"> - Improvement of customer satisfaction - Quality management and quality control system - Creative customer communication using SNS
 <p>Shareholders</p>	<ul style="list-style-type: none"> - Creation of financial achievements - Risk management - Transparent management activity 	<ul style="list-style-type: none"> - General meeting of shareholders - Institutional investors' meeting - Public announcement material 	<ul style="list-style-type: none"> - Creation of stable profits - Strengthening the company-wide risk management - Establishment of transparent governance
 <p>Employees</p>	<ul style="list-style-type: none"> - Employment and welfare - Safe workplace - Human rights management 	<ul style="list-style-type: none"> - VOE (Voice of Employees) - Joint labor-management conference and complaint processing registry - Stress Zero Program (Individual counseling, on-line psychological health examination) 	<ul style="list-style-type: none"> - Happy corporate culture - Employee rights protection activity - Human rights management system
 <p>Partners</p>	<ul style="list-style-type: none"> - Shared growth - Win-win management - Fair trade 	<ul style="list-style-type: none"> - Human rights assessment and physical inspection of human rights management - Xi CEO Forum / Subcon Board - GS Partner/ Cyber Shinmungo 	<ul style="list-style-type: none"> - Great Partnership Package - Sustainable business management system - Autonomous fair trade compliance program
 <p>Government</p>	<ul style="list-style-type: none"> - Compliance with the law - Faithful payment of taxes 	<ul style="list-style-type: none"> - Homepage - Press Releases 	<ul style="list-style-type: none"> - Compliance with related legislations - Performance of government policies
 <p>Local Communities</p>	<ul style="list-style-type: none"> - Development of local communities - Information disclosure and communication 	<ul style="list-style-type: none"> - Social Contribution Activities - Resident presentation meetings 	<ul style="list-style-type: none"> - Social contribution based on the characteristics of the construction industry - Coexistence with the local society

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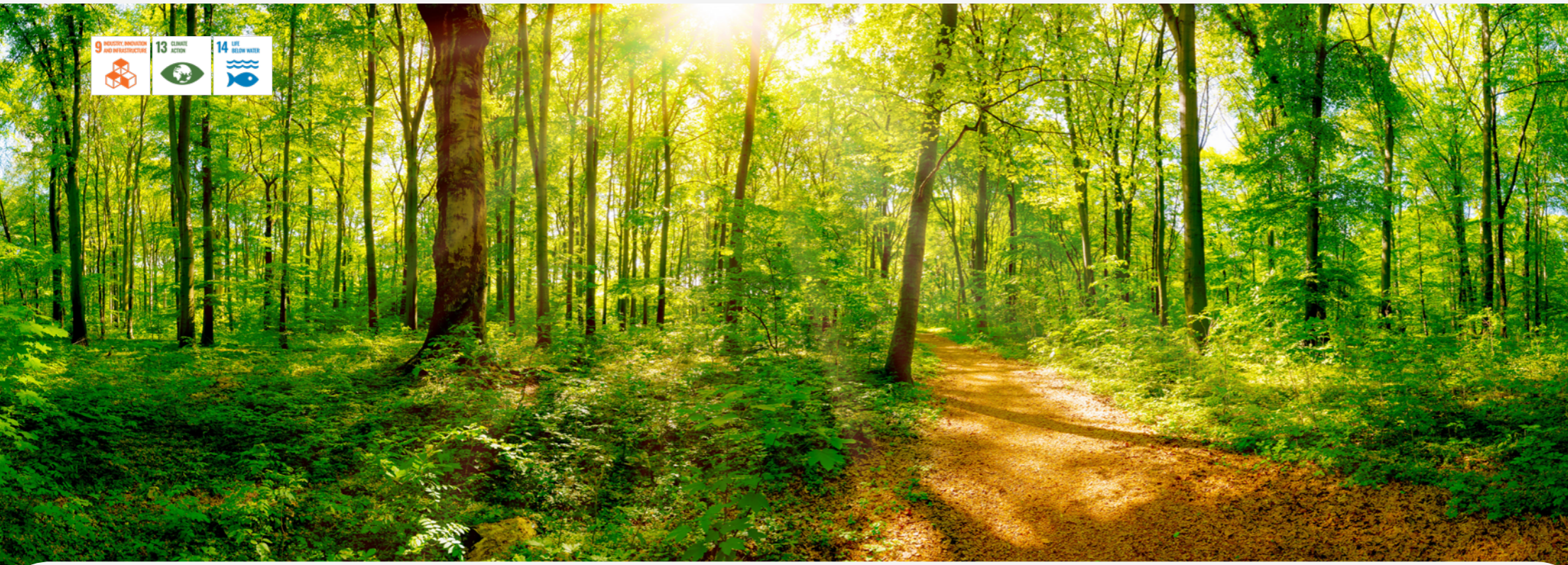
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IFC Seoul



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Minimizing Environmental Impact

In view of the emergence of various environmental issues such as global warming and fine dust, a corporation must consider the environmental problems while establishing its management strategy. Environmental laws and regulations have been tightened accordingly, as indicated by developments such as the “2050 Carbon Net Zero” and global trends such as “EU Carbon Tax,” “Emissions Trading System,” “Special Act on the Reduction and Management of Fine Dust,” “Act on Supports of Composition of Green Buildings”, and more. Under this new regime, the ability of a company to respond to environmental risk is directly connected to its competitiveness. GS E&C established the Energy Management Committee in 2012 in order to respond to the “GHG Emission Target Management System”, and formed the ESG Committee in 2021 in accordance with global trends such as the 2050 Declaration of Carbon Neutrality. GS E&C prevents the environmental risks caused by violation of environmental law / regulations based on the company-wide eco-friendly construction process to keep up with the global trend. Further, we possess/develop various building energy patents to minimize the environmental impact in accordance with the Act on Supports of Composition of Green Buildings. Moreover, we expand our investments in eco-friendly technology and pursue the development of renewable energy technology to prepare for the changes in the energy paradigm.

Environmental Management

To reduce GHG emissions by

31.86% by 2050
(In comparison with emissions in BAU)

Investment in new eco-friendly business

KRW 67,400 million

Green Construction Process

Water reused

176,068m³

Waste recycling rate

99.8%

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Minimizing Environmental Impact

Environmental Management

Environmental Management Strategy

As environmental issues such as climate change and resource depletion are getting intensified, the importance of conserving the environment is increasing throughout the world. Domestic and overseas environmental regulations have been strengthened with a view to addressing the imminent threat. Under this new order, the ability of a company to respond to environmental risks is directly connected to its competitiveness. GS E&C has established an environmental management strategy system, and has been strengthening its ability to respond to environmental issues so as to keep pace with global changes preemptively and fulfill its responsibilities as a global top-tier construction company to the fullest. We have established 3 strategic directions and 10 strategic tasks with the goal of reducing GHG emissions by 31.86% from the BAU level by 2050. We are managing our KPIs thoroughly in accordance with the green management evaluation report assessment procedure.

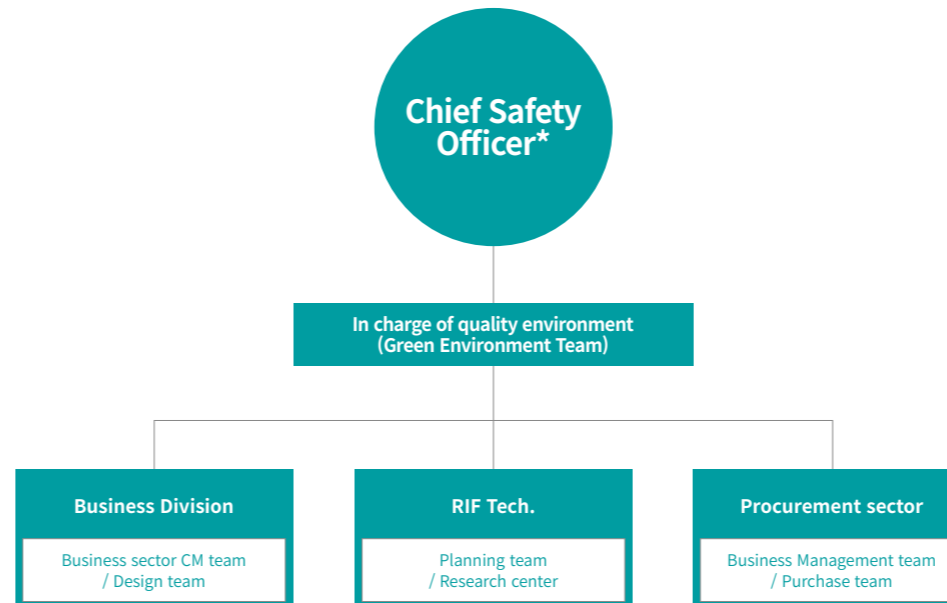
Long-term Strategy for Environmental Management			
Strategy	<i>Eco Global Top Tier</i>		
Goal	To reduce GHG emissions by <i>31.86% by 2050*</i> <i>(In comparison with emissions for BAU)</i>		
Strategic Directions	1. Create eco-friendly business sites	2. Strengthen the environmental management system	3. Reduce GHG emissions and energy consumption
Strategic Tasks	<ul style="list-style-type: none"> Strengthen voluntary fine dust reduction activities Achieve zero pollution Respond voluntarily to environmental regulations Establish a life cycle evaluation system 	<ul style="list-style-type: none"> Reinforce global environmental management Strengthen environmental communication Cultivate TFTs and experts 	<ul style="list-style-type: none"> Strengthen enterprise-wide and partners' GHG emission reduction activities Develop projects and technology for reducing GHG emission Secure GHG and energy consumption diagnostic capability

*GHG reduction target is being re-established

Environmental Management Organization

GS E&C has newly established an ESG team to manage the implementation of climate change strategy in reflection of the risks and opportunities associated with climate change. The ESG team reports to the ESG Committee within the BOD, and is conducting environmental management activities such as acquiring environmental management system certification, environmental performance management, and external networking, led by the Green Environment Team under the Quality Environment Part of the CSO Division. In addition, we have formed the Energy Management Committee to specify energy conservation goals by business sector and to monitor relevant performance. We are exerting efforts to create eco-friendly business sites by encouraging all employees to develop the importance of environmental awareness and participate actively in environmental management activities.

Environmental Management Organization Chart



* Holding concurrent position of CGO(Chief Green Officer)

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Minimizing Environmental Impact

Strengthening Environmental Management Competencies

Compliance with Environmental Regulations and Enforcing Inspection

We strive to achieve our goal, "zero environmental fine", by carrying out our legal responsibility to the fullest and strengthening environmental inspection in compliance with the environmental regulations. In line with the amendment of the Special Act on the Reduction and Management of Fine Dust, GS E&C is proactively implementing the "Voluntary Agreement on High-Concentration Fine Dust Reduction" supervised by the Ministry of Environment. We are also doing our best to reduce fine dust at our business sites. In addition, we have strengthened environmental inspection using the mobile GS E&C application "Environmental Regulation Self-Inspection" in order to make our business sites eco-friendlier. By preparing/distributing the guidelines on construction environment management facility and the environment management casebook, we have been able to respond preemptively to the strengthened construction environment regulation and increased the environment management capability.

Guidelines for the Installation of Environmental Facilities

In view of the recent tightening of environmental regulations, GS E&C considers that there is an emerging need to establish standards for the installation of environmental facilities at construction sites. We developed and distributed the "Environmental Management Facility Installation Guide" to the construction sites in order to improve unclear installation standards as well as to satisfy new legal standards. The Guide has 15 themes including wheel washing facilities and waste sorting storages. Each of them consists of an Installation Guide, Signs, and Notice for better understanding.



Environmental Facility Installation Guide

Green Investment for Environmental Management of Construction Sites

GS E&C divides its environmental investment into three categories: on-site environment management expenses, investments in environmental technology, and investments in new eco-friendly businesses. We have established and implemented a plan for each item.

Environmental Management Expenses* (Unit: KRW 100 million)

Category	2019	2020	2021	2022
Plan	292	312	308	303
Performance	301	331	347	-

* Expenses for the installation/operation of environmental pollution prevention facilities + Waste treatment expenses

Investment in Environmental R&D and New Business (Unit: KRW 1 million)

Category	2019	2020	2021	2022 plan
Environmental R&D	2,828	3,743	3,499	5,387
Investment in new eco-friendly business	-	5,558	67,400	99,313

Environmental Training for Employees

GS E&C provides systematic education to help its employees understand the principles of eco-friendly management and enhance the efficiency of eco-friendly management activities. We distribute on-site environmental management guidelines whenever intensive environmental management is needed (winter, rainy season, etc.). In case any issue arises regarding the environment, we use the internal EP bulletin board to upload a case study for employees' reference. In addition, we conduct site visits and video-conferences to deliver information related to legal environmental management regulations, environmental issues, and environmental improvement cases to new CMs, on-site environmental management staff, and Headquarters staff. When more professional expertise and skills are required, we implement advanced programs (noise/vibration, fine dust) to meet the on-site environmental management requirements.

Environmental Training for Partners

We provide training for partners' managers and supervisors—who are the main agents of construction—in order to strengthen their competence and interest in environmental management. We visit a new construction site and provide tailored environmental management training considering the characteristics of the site. We also provide support for establishing an environmental management system. Moreover, our training on topics including resource saving/recycling, energy conservation, and GHG emission reduction has contributed to raise partners' environmental awareness, and we will continue to do our best to raise partners' interest in the environment by sharing the latest environmental policy and social issues.

2021 Environment Education Achievements of Employees and Partners

Category	Major Performance	
Environmental education	161 times	644 persons
Remote video education	42 times	248 persons

Named GGBS Star Champion by the Building and Construction Authority of Singapore

GS E&C qualified as GGBS¹⁾ Star Champion by maintaining the highest environmental certification grade (STAR) from the Building and Construction Authority of Singapore for 5 consecutive years. We received a Star Grade for Project N101 for the underground highway construction ordered by the Land Transport Authority of Singapore. GS E&C is now recognized as a global green construction company through this certification, and we will become a leading ESG company, while expanding our performance.

1) As an environmental certification system operated by the Building and Construction Authority of Singapore, GGBS evaluates companies that are working on construction projects in Singapore in terms of environmental policy, noise/vibration, waste, civil complaint handling, etc., and assigns a grade.

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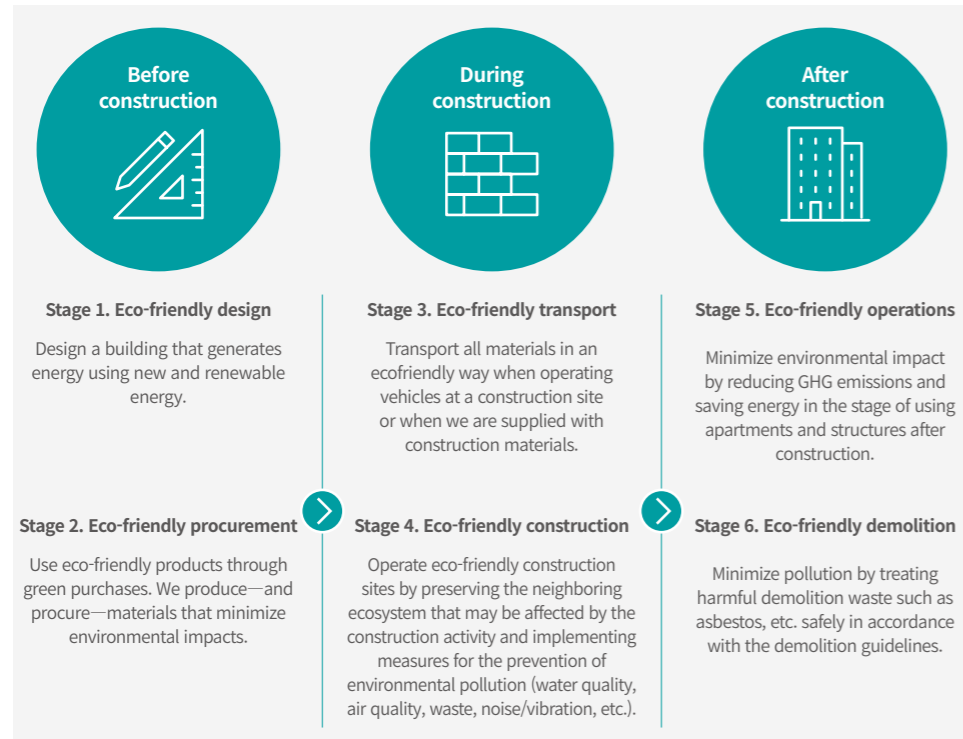
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Minimizing Environmental Impact

Green Construction Process

GS E&C is practicing environmental management in all its business processes. The environment management system of GS E&C operates in accordance with the procedure manual and guidance based on the manual. GS E&C supports the environmental issues that may occur during the entire process ranging from pre-commencement of construction to the completion of construction, in order to prevent the risks preemptively. We are practicing enterprise-wide environmental management throughout all business processes including design, selection of suppliers, procurement/production of material, building, demolition, and operation. Especially, we actively respond to the core environmental concerns related to the construction industry such as greenhouse gas emissions, generation of waste, use of water resources, air quality, preservation of the ecosystem, etc. Moreover, GS E&C continuously measures the environmental management performance and discloses information to the outside transparently to improve its performance. For this, we have established and operated the Green Information Management System to monitor GHG emissions systematically and to manage our environmental performance.

Eco-friendly Construction Process



Eco-Friendly Design, Constructing High-Efficiency Buildings

GS E&C enhances building energy efficiency through eco-friendly design. Especially, we develop design technologies for the optimization of energy to construct green buildings and green homes. With the insulation design, we reduce the energy consumption, and apply design to use renewable energy such as geothermal heat and solar power for buildings to generate the energy themselves. We applied such renewable energy design system to Heukseok River Park Xi Apartment Complex, which is currently under construction, to improve energy efficiency and decrease carbon emissions.

High-efficiency Buildings

(Unit: %)

Category	2019	2020	2021
High-efficiency buildings	50	67	68

Eco-Friendly Procurement, Utilizing Green Materials

Green Procurement

GS E&C procures materials and products through a green procurement process so as to contribute to spreading the government's eco-friendly product promotion policy. We identify materials that can be replaced with green alternatives and purchase green products preferentially. We have established a green procurement system through which we are monitoring internal green procurement and managing the relevant performance. We made purchases worth a total of KRW 93.8 billion through green procurement, which is equivalent to 9.5% of the total procurement volume in 2021. In addition, we have declared the green procurement plan within the purchase system to strengthen environmental management, and provide incentives to eco-certified companies and eco-friendly product suppliers, when evaluating our partners and new suppliers.

Green Purchases

(Unit: KRW 100 million)

Category	2019	2020	2021
Eco-friendly construction (HB Mark)	132.02	129.16	42.89
Highly energy-efficient machinery	149.00	8.54	285.66
Energy Consumption Efficiency Grade 1 or 2	154.23	236.70	231.57
Eco-Label	139.67	459.95	357.93
Others	10.11	3.25	20.10
Total	576.03	837.60	938.15

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Minimizing Environmental Impact

Green Construction Materials

GS E&C uses eco-labeled materials at its construction sites in order to reduce environmental loads from construction and to minimize environmental impact. In addition, we apply eco-friendly design guidance such as green construction certificate, etc., and it is applied on-site in accordance with the details of design and purchase. Moreover, we continuously use eco-friendly materials including EPD (Environmental Product Declaration) products for major construction areas such as internal wall materials, floor materials, and window materials in addition to low-carbon materials, certified resource recycled materials, certified harmful substance reduction materials, and more.

“Eco-Sand”, Natural Resource Keeper

Cognizant of the importance of natural resources, GS E&C is procuring natural resources through recycling in order to preserve natural resources for future generations. In the past, GS E&C had a hard time in procuring sand and gravel due to the difficulty in collecting natural aggregates and public opinion against the collection of sea sand. To procure sand and gravel stably, we developed an eco-sand production system that is both eco-friendly and economically feasible. We produced eco-sand by crushing rock debris¹⁾ generated during tunnel blasting at the Expressway No. 14 Changnyeong-Milyang Construction Site. The transportation process was minimized by installing a crusher plant²⁾ on-site and collecting aggregates. As a result, we were able to secure a steady supply of eco-sand and save 250,000 liters of diesel while reducing GHG emissions by 667tCO₂-e.

- 1) Rock debris: Stones generated during excavation
- 2) Crusher plant: A factory that produces stones by crushing parent rocks collected from a highway construction site

Eco-Friendly Transport, Maximizing Fuel Efficiency

Eco Driving Campaign

GS E&C is conducting the eco-driving campaign to minimize environmental impact during transport. We educate our drivers so that they avoid engine idling, drive at moderate speeds, and refrain from using outdated vehicles. In particular, avoiding engine idling is very effective in reducing GHG emissions. To further promote green transport, we will distribute eco-driving posters and conduct relevant campaigns.



Slogan for Eco Driving Campaign

Introduction of Eco-friendly Workwear

GS E&C has introduced an eco-friendly vest made of “REGEN”, a recycled polyester made of textile material developed from crushed waste PET bottles. Previously, we used a vest made of polyester, a chemical synthetic textile, but GS E&C plans to gradually expand the introduction of on-site eco-friendly workwear such as shirts, and etc.

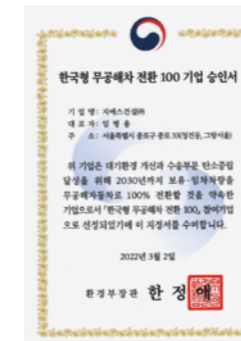
Through the introduction of the eco-friendly vest, we expect to have recycling effects of approx. 24,000 PET bottles (based on approximately 5,000 clothes of annual order quantity). By introducing most frequently used workwear made with eco-friendly materials, GS E&C plans to engage in active eco-friendly management for sustainable consumption to achieve circulation of resources as well as to minimize the environmental destruction caused by production activities.



Employees wearing eco-friendly workwear

Join K-EV100

According to the eco-friendly vehicle conversion policy of the Korean government, GS E&C has applied to join K-EV100 to promote the phased conversion into eco-friendly vehicles for the improvement of the air environment and the achievement of Carbon Neutrality in transportation. We plan to achieve the conversion rate of 30% by 2025, 70% by 2028, and 100% by 2030.



K-EV100 Corporate Approval

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Minimizing Environmental Impact

Eco-Friendly Construction, Preventing Environmental Pollution in Areas Near Construction Sites

Reduction of Fugitive Dust and Fine Dust

GS E&C publishes and distributes fugitive dust management casebook to promote compliance with the environment laws and the guidance of the Ministry of Environment. GS E&C developed rapid ventilation and portable dust collector technology in order to reduce fugitive dust and fine dust generated during construction. A portable dust collector sucks the dust generated during construction, and then mixes the dust with water and discharges it as soil. In addition, we strive to minimize air pollution resulting from construction by installing wheel cleaning facilities and anti-dust covers.



Installation of Portable Screen and Dust Collectors

Protection of Plants and Endangered Species

GS E&C is making efforts to protect plants and endangered species discovered during construction. From the establishment of the construction plan, we analyze and proactively respond to the neighboring environment through an environmental impact assessment. We are protecting the ecosystem in various ways such as vegetation nurseries, eco-corridors, wildlife fences, and low-noise, low-vibration construction methods. In 2021, we planted 1,801 nursery trees and protected the habitats of legally protected species such as common kestrels, otters, and Chinese parrowhawks during construction.

Efforts to Preserve the Aquatic Ecosystem

GS E&C implements various efforts to protect the aquatic ecosystem, and possesses an air bubble barrier technology that protects the aquatic ecosystem. Air bubble barrier technology keeps marine organisms from moving to other areas by generating high-pressure air bubbles in the water, and thereby prevents the inflow of organisms and preserves the aquatic ecosystem. In addition, we are monitoring water quality and preventing water pollution by conducting an environmental impact assessment on a regular basis during construction. Furthermore, we install wastewater treatment facilities to meet the allowable wastewater discharge criteria.

Waste-to-Energy Technology to Reduce Waste and Protect the Environment

GS E&C is converting waste into energy using waste-to-energy which treats and converts waste into electric power and heat at the same time. As a result, it minimizes the environmental impact of waste and saves resources by generating energy. We have a record of 26 projects for construction and 28 projects for operation of waste-to-energy plants based on various waste-to-energy technologies such as automatic waste collection system, Mechanical Biological Treatment (MBT) for waste, and stocker incineration technology.

Protection of Biodiversity and Environment in the Business Areas

Subject of Assessment of Environmental Impact (Major Ecosystem Status)						Protection activity
Name of site	Birds	Mammal	Fish	Herptile	Plant	
Changnyeong-Miryang Highway	- Grey Frog Hawk ¹⁾ - Kestrel ¹⁾ - Mandarin duck - Long-billed ringed plover ³⁾	- Otter ²⁾ - Wildcat ³⁾	- Crucian carp - Minnow	- Mountain grass lizard - Steppe Rat Snake		<ul style="list-style-type: none"> • Installation of eco-corridor and guidance fence • Installation of side gutter exit • Silt protection film, reduction management of suspended
Kwangju outer ring highway site	- Grey Frog Hawk ¹⁾ - Kestrel ¹⁾ - Mandarin duck - Long-billed ringed plover ³⁾	- Otter ²⁾ - Wildcat ³⁾ - Mole - Elk	- Minnow - Blue gill		- Pine tree - Chestnut - Yellow locust	<ul style="list-style-type: none"> • Installation of eco-corridor and guidance fence • Installation of side gutter exit • Adjustment of lighting angle • Plantation (359 trees) • Silt protection film, diversion water way, grit chamber
Paju Beobwon Industrial Complex site	- Grey Frog Hawk ¹⁾ - Kestrel ¹⁾	- Elk - Raccoon - Mole	- Minnow - Chinese minnow - Carp	- Toad - Leopard frog - Mountain grass lizard	- Oak - Chestnut - Pine tree	<ul style="list-style-type: none"> • Installation of eco-corridor and guidance fence • Installation of side gutter exit • Adjustment of lighting angle • Installation of artificial birdhouse • Silt protection film, diversion water way, grit chamber
Icheon-Osan Highway site	- Kestrel ¹⁾ - Sparrow hawk ⁴⁾ - Mandarin duck	- Mole - Raccoon - Elk	- Minnow - Chinese minnow	- Leopard frog - Elaphe rufodorsata	- Pine tree - Chestnut - Nut pine	<ul style="list-style-type: none"> • Installation of eco-corridor and guidance fence • Installation of side gutter exit • Reduction management of suspended sediment
Jisa Global Industrial Complex site (Busan)	Kestrel ¹⁾ Woodpecker Parus varius	Otter ²⁾ Wildcat ³⁾ Mole Elk	Chinese minnow Pond loach Rhinogobius brunneus	- Leopard frog - Viper - Bullfrog	Pine tree	<ul style="list-style-type: none"> • Plantation (1442 pine trees) • Treatment of pine wilt • Installation of stone pile / tree stump • Installation of eco-corridor and guidance fence • Installation of side gutter exit • Birds (reduction management of suspended sediment: Grit chamber) • Installation of artificial birdhouse

1) Natural monuments 2) 1st grade endangered species 3) 2nd grade endangered species 4) 3rd grade endangered species



Installation of eco-corridor



Installation of guidance fence



Installation of stone pile / tree stump



Installation of artificial birdhouse



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Minimizing Environmental Impact

Reinforced Waste Monitoring and Recycling

GS E&C establishes and operates waste discharge and recycling goals in order to minimize waste discharged during construction. In particular, we are taking the initiative in the recycling of waste so as to carry out our environmental responsibility to the fullest. As part of this, we lawfully dried and recycled construction sludge (29,371m³ of heaving soil) generated at the Baegot New Town Coastal Road Expansion Construction Site. Moreover, we conclude an agreement with partners to minimize incineration / reclamation to expand the rate of recycling waste. Thanks to such efforts, we recorded a waste recycling rate of 99.8% in 2021. (99.7% in 2020)

Waste Generation and Treatment (Unit: Ton)

Category	2019	2020	2021
Total waste generated	450,870	792,460	1,049,565
Recycling	436,765	789,997	1,047,128
Reclamation and incineration	14,105	2,463	2,437

Wastewater Treatment Using Eco-Friendly CO₂ Neutralization System

GS E&C developed a carbon dioxide-dissolving device to facilitate the highly efficient dissolution of carbon dioxide in alkaline wastewater, and we have established an automatic control system for safe operation. The eco-friendly development technology was registered as a Carbon Dioxide Neutralization System patent (10-1953829) in 2019 for the first time among construction companies, and it was applied to the Eumseong PC Plant Wastewater Treatment Center, which is being operated as part of our new business fields, replacing the use of hazardous chemicals (sulfuric acid) prohibited by the Chemicals Control Act.



Patent of the carbon dioxide neutralization system Eco-friendly Operation

Reducing Waste with Smart Construction

GS E&C introduced eco-friendly construction methods such as composite PC method, modular method, and BIM method in order to reduce the generation of waste. The PC method and modular method minimize dust and noise by making a structure first and then assembling the parts at the site to finish construction. The PC method is generally used to construct underground parking lots of apartments, and not only can it minimize complaints about waste and noise, but it can also reduce the construction period and secure economic feasibility. Likewise, the modular method is based on assembling pre-fabricated modules like Lego blocks, which is also effective for reducing waste. In the BIM method, a structure is designed as a virtual model in 3D, not 2D. Using this method, it is possible to prevent excessive design, calculate the quantities and costs of construction materials more accurately, and reduce waste generation effectively.

Use and Reuse of Water Resources

To reuse service water, we used purified wastewater from wastewater discharge facility of the Privately Funded Seobu Expressway Underpass Construction Site for the wheel washing system and road cleaning vehicles. As a result, we were able to recycle 176,068m³ of service water. We are strengthening efforts to reuse service water and reduce wastewater during construction.

Water Usage by Source (Unit: m³)

Category	2019	2020	2021
Service water	648,344	649,130	632,549
Underground water	1,247,449	1,248,961	1,217,059
River water	862,897	863,943	841,875
Total	2,758,690	2,762,034	2,691,483

Amount of Water Reused (Unit: m³)

Category	2019	2020	2021
Amount of water reused	173,798	159,639	176,068

Eco-Friendly Operation

“Building Energy” with Enhanced Energy Efficiency

GS E&C applies the “Building Energy” technology to reduce energy consumption from the building operation. GS E&C developed building energy technologies such as optimization of heat sources, renewable energy, and underground parking lot lighting design in order to reduce energy consumption during building operation. The technology for optimization of heat sources responds to the demand for heating and cooling of buildings by identifying an optimized energy supply solution. In addition, by applying renewable energy atomization technology, solar power and geothermal energy, which are renewable energy, are appropriately utilized to produce energy necessary for buildings. Further, highly efficient diffusive optical lens to LED lighting are designed and applied to increase the diffusion of light, so the building is operated to achieve high-efficiency operation with less energy.

Geothermal Power Usage (Unit: kW)

	2019	2020	2021
	635,036	627,999	655,124

Zero Energy Building

GS E&C develops and demonstrated building energy efficiency design technology, energy monitoring and control technology for households and complexes, renewable energy sharing / trading platform technology, etc. through the application of passive/active technology used in the Smart Village within Busan Eco Delta City, which is one of the exemplary models of smart city nationwide. We acquired energy efficiency rating of 1+++ and zero energy structure certificate of grade 1 using aforementioned technologies. To prove the energy sharing/trading platform, we applied the renewable energy facility design to the nearby office facility (Urban Tech House) and water treatment facility as well as Smart Village. Through this, we secured the foundation for technology that can operate energy high-efficiency buildings.

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Minimizing Environmental Impact

Eco-friendly Demolition

GS E&C has established its own demolition and waste management guidelines to minimize the environmental impact of waste. We prepare and utilize our own demolition manual in accordance with the Construction Waste Recycling Promotion Act. Demolition is carried out after removing the asbestos, and waste generated during demotion is safely disposed of in accordance with the Enforcement Rules of the Wastes Control Act.

Management of Water Pollutants

GS E&C manages the water quality in accordance with the water quality guidelines. GS E&C is running Elysian Gangchon and Elysian Jeju and operating sewage treatment plants in these business sites. To minimize environmental pollution from water pollutants generated from the sewage treatment plants, we are managing water pollutants with an increased standard than the legal discharge concentration standard.

Water Pollutants Discharged*

Category	Unit	2019	2020	2021	
BOD	Discharge	m ³	0.2	0.2	0.3
	Discharge concentration	ppm	0.7	1.0	1.6
	Legal standard	ppm	10.0	10.0	10.0
SS	Discharge	m ³	0.3	0.4	0.3
	Discharge concentration	ppm	1.1	1.8	1.3
	Legal criteria	ppm	10.0	10.0	10.0
COD	Discharge	m ³	-	-	1.0
	Discharge concentration	ppm	-	-	5.3
	Legal criteria	ppm	-	-	20.0

* Based on Gangchon Elysian and Jeju Elysian

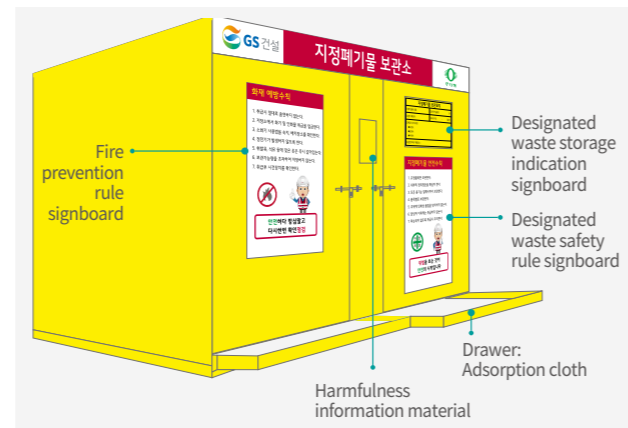
Management of Hazardous Chemicals (Designated Waste)

GS E&C sorts and treats designated waste such as waste oil and waste paint generated from construction equipment and during top coating, etc. in accordance with the Wastes Control Act. We are operating and managing designated waste storages and relevant facilities in compliance with the relevant regulations in order to prevent environmental pollution resulting from the leak of designated waste.

Hazardous Waste Chemicals Discharged (Unit: ton)

Category	2019	2020	2021
Waste oil, waste paint, etc.	57	127	124

Specifications for the Installation of Designated Waste Storage



Waste Treatment Process

GS E&C connects, operates, and monitors the waste processing system and in-house waste management system in real-time to achieve the legally stipulated objectives of waste recycling. To treat waste generated at business sites lawfully, GS E&C verifies the waste treatment companies before bidding, led by the Green Environment Team. During the verification process, we check for confirmation of the collection/transport/final/interim treatment license and waste treatment contract. In order to prevent the issue of abandoned waste, we check whether the waste treatment service companies have an abandoned waste treatment verification.

Hazardous Chemical Search Engine

GS E&C has been operating its own chemical search system that it developed for the safe management of hazardous chemicals. Once the user enters the information on hazardous chemicals such as MSDS¹⁾ numbers, CAS²⁾ numbers, or content by CAS number, the chemical search system reveals if they exceed the criteria. We respond preemptively to any risk that may occur during the chemical handling process by managing hazardous chemical judgment results and chemical inventories.

1) MSDS (Material Safety Data Sheet): Information on chemicals
 2) CAS (Chemical Abstract Service): A service that assigns numbers to chemicals

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Response to Climate Change

The international financial institution, Financial Stability Board launched “Task Force on Climate Related Financial Disclosures”(TCFD) as a guidance system for companies to disclose the management information related to climate change in accordance with the necessity of managing the risks of climate change. It suggested the common worldwide recommendations to encourage the transparent disclosure of corporate financial information related to climate change.

In October, 2020, the Korean government declared its roadmap for the achievement of Carbon Net Zero by 2050 as a national objective, and announced the Net Zero scenario in October, 2021. In addition, major countries all over the world declared their goals for zero carbon emission by 2050, and the role of companies for GHG reductions has been emphasized more than ever. Since the management of GHG emissions and air pollution appeared to be a significant risk in the materiality assessment, active efforts to overcome the climate crisis are necessary. We will establish the climate change strategy in accordance with the recommendations provided by TCFD, and take part actively in global climate change prevention movements by pursuing eco-friendly business based on the characteristics of the construction industry.

GS E&C Climate Change Response Direction



Governance

- Establish a governance system that can respond to the risks and opportunities presented by climate change and strengthen the relevant organization



Strategy

- Analyzing the influence of climate change risks and opportunities and strengthening the response organization



Risk Management

- Systematization of the risk assessment and management process



Index and objectives

- Set climate change risk and opportunity objectives and systematize the management of achievements

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Response to Climate Change



Governance

Strengthen the organization's governance amid climate-related risks and opportunities

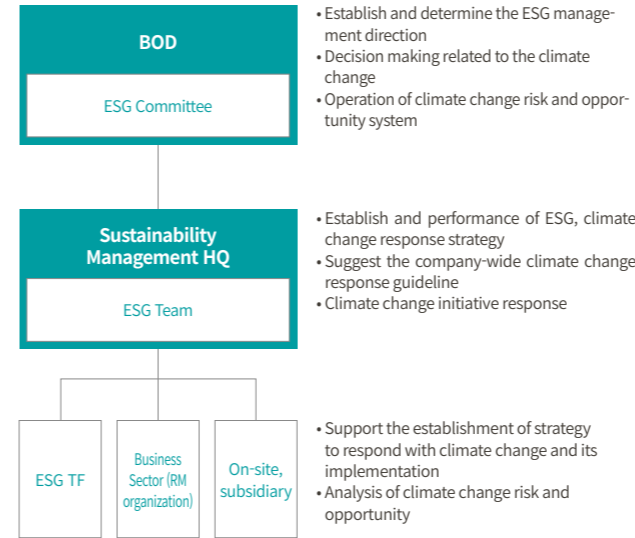
Supervision of the BOD and the role of management

The highest decision-making body of GS E&C is the BOD. We have established three committees such as ESG Committee, etc. within the BOD and organized seven meetings of the committees on average annually. All decision-making deliberations on sustainable management including the response to climate change are made by the ESG Committee. In addition, GS E&C appointed an ESG expert as an outside director for strengthening the ESG management as evidence of our interests in climate change. The Sustainability Management Committee established in 2011 has been expanded and re-organized as ESG Committee, and it is operated as a body to make decisions related to major climate change issues and review the company's measures in the areas of environment (including climate change), society, and corporate governance. In addition, GS E&C operates the energy management committee under the supervision of quality / environment since 2012 to respond GHG objective management system. Energy Management Committee implements the education for person in charge of related departments and various departments are participated such as Green Environment Team, Business Sector/ HQ CM Team, Technology, Planning, etc. In addition, we have introduced efforts toward saving buildings energy and GHG emissions such as reporting the saving activity through scheduled meetings, checking the progress to establish countermeasures, etc. Major issues among those are reported to the management committee including the CEO.

Organization Responsible for Climate Change Response

The response to climate change by GS E&C is made throughout the overall organization of company. ESG Team supervises the establishment of company-wide strategy to respond with climate change and suggests the guideline to respond with climate change, and based on these, the business support department and each business sector / HQ perform the company-wide RM activities including climate change risk and opportunity analysis throughout the entire process of business promotion. Green Environment Team operates the Energy Management Committee responds the GHG reduction and GHG regulations of government with our office building management team and each business sector / HQ.

Supervision of the BOD and the role of management



Name of Committee	Composition	Name of Directors	Major Reports in 2021 (related to the climate change)
ESG Committee	4 outside directors, 1 non-standing director	Hee-Gook Lee (committee president) Hee-Jin Cho Ho-Young Lee Ho-In Gang Jin-soo Huh	Establishment of climate change response strategy for carbon neutrality Establishment and performance of GHG emission reduction plan Expansion and performance of eco-friendly technology development related to the construction and the environment investment plan Establishment and performance of reduction plan such as water use, waste discharge, etc.
			Join K-EV100 (Feb. 2022)

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Response to Climate Change



Strategy

Actual and potential impacts of climate related risks and opportunities on the organization's businesses, strategy, and financial planning

Analysis of Climate Change Risk and Opportunity Impact

GS E&C classifies the types of climate change risks as conversion risk (policy and regulation, market reputation) and physical risks (short/long-term), and the types of climate change opportunities as resource efficiency, products and services, energy mix, workplaces of GS E&C as a market, upstream and downstream, and new business sectors for analyzing the risks and opportunities associated with climate change. The analyzed climate change risks and opportunities are further classified by short-term, mid-term, and long-term, and the impacts are evaluated in connection with the business in progress and the new business strategy.

Scenario Analysis

GS E&C considers that an analysis based on RCP(Representative Concentration Pathways)¹⁾, IEA 2DS(2°C Scenario)²⁾, and nationally determined contribution scenario is appropriate for our industrial system in that the scenario analysis is implemented based on these standards. The short/mid/long-term risks and opportunities of GS E&C are analyzed and the countermeasures are established and implemented. In addition, GS E&C re-analyzed the scenario in accordance with National Carbon Neutrality Declaration in Oct. 2021 and the global trends of SBT (Science Based Target) criteria. The analysis, based on the IEA NetZero by 2050 scenario corresponding to the climate change 1.5°C conversion plan, is in progress, and information on the strategy for responding to climate change in accordance with the relevant scenario analysis result will be disclosed.

1) RCP(Representative Concentration Pathway : A scenario to analyze with radiative forcing on the atmosphere by human originated from IPCC 5th assessment report (2013)

※ RCP 6.0 : A scenario to assume that GHG reduction policy is realized in certain level

2) IEA 2DS(2°C Scenario) : Among scenarios configured by IEA, a scenario to restrict the increase of earth temperature as 2°C by 2100 through maintaining GHG emission less than 50% in comparison with 2013 until 2050

Type	Element		Potential impact	Financial impact	Responding to the risk and the method for realization of the opportunity
Risk	Transition Risk	Policy and Legal	<ul style="list-style-type: none"> Transfer of carbon emission trading Increase of price of certified emission reduction 	<ul style="list-style-type: none"> Increase of carbon costs 	<ul style="list-style-type: none"> KRW 368 million Re-establishment of strategy to respond with climate change Establishment of strategy to respond with carbon emission trading Introduction of reduction methods such as internal carbon pricing system, etc.
		Reputation	<ul style="list-style-type: none"> Declined credit rating due to the insufficient carbon information disclosure 	<ul style="list-style-type: none"> Increase of financial expenses 	<ul style="list-style-type: none"> KRW 2,864 million Strengthening of external initiative response capability (expansion of the scope of GHG management, secure the reliability of material, etc.)
	Physical risk	<ul style="list-style-type: none"> Declined productivity caused by climate change, delay of construction period 	<ul style="list-style-type: none"> Occurrence of the construction period regaining costs 	<ul style="list-style-type: none"> KRW 179,069 million Continuous climate change monitoring in preparation of climate pattern and whether abnormality on each country Establishment of manual to respond with climate change 	
Opportunity	Resource efficiency		<ul style="list-style-type: none"> Environment business such as recycling, etc. of waste resources Development of low-carbon technology / product 	<ul style="list-style-type: none"> Reduction of carbon costs Increase of sales 	<ul style="list-style-type: none"> KRW 7,862 million Development of low carbon technology such as recycling of waste resource, CCUS, hydrogen, etc. and seeking commercialization methods
	Energy Source		<ul style="list-style-type: none"> Renewable energy business 	<ul style="list-style-type: none"> Increase of sales 	<ul style="list-style-type: none"> KRW 260,000 million Development of renewable energy business such as solar power, fuel cell, wind power, etc. Monitoring on the renewable energy expansion policy
	Market		<ul style="list-style-type: none"> Expansion of eco-friendly new business value chain Advancement of renewable energy business in emerging countries 	<ul style="list-style-type: none"> Increase of sales 	<ul style="list-style-type: none"> KRW 250,300 million Seeking an opportunity of eco-friendly new business of expanded value chain such as manufacturing business, rear industry, etc. Expansion of advancement to market in emerging countries in consideration of business environment expandability, profitability, etc.

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Response to Climate Change



Risk Management

Processes Used by the Organization to Identify, Assess, and Manage Climate Related Risks

Climate Change Risk Assessment

GS E&C evaluates the risks and opportunities associated with climate change from financial and strategic perspectives in accordance with our risk management procedure. A detailed evaluation is made using a matrix to assess the importance and possibility of occurrence. The score of importance evaluation (consequence) is granted within 1 ~ 5 points considering cost impact and schedule impact, and the score of occurrence possibility (probability) is granted within 1 ~ 5 points by 5 stages such as Remote, Unlikely, Possible, Probable, and Almost Certain. According to the score obtained by the multiplication of Consequence and Probability through the relevant matrix analysis, the importance of risk is classified as high, middle, and low, and the high risks are managed intensively. For classification of the risk, when the value of multiplication of Consequence and Probability is 1 ~ 5, it is evaluated as low risk; if it is 6 ~ 12, it is evaluated as middle risk; and if it is 13 ~ 25, it is evaluated as high risk.

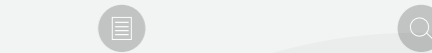
Table I. Consequence and Probability Matrix

Probability	Threats					Opportunities				
	5 Almost Certain	5	10	15	20	25	25	20	15	10
4 Probable	4	8	12	16	20	20	16	12	8	4
3 Possible	3	6	9	12	15	15	12	9	6	3
2 Unlikely	2	4	6	8	10	10	8	6	4	2
1 Remote	1	2	3	4	5	5	4	3	2	1
Consequence Score	1	2	3	4	5	5	4	3	2	1

■ High
 ■ Medium
 ■ Low

Table II. Consequence and Probability table

Score	CONSEQUENCE		PROBABILITY
	Cost Impact	Schedule Impact	
5 Very High	> 0.2%	More than 8 Weeks	Almost Certain (71~100%)
4 High	0.1~0.2%	4~8 Weeks	Probable (51~70%)
3 Medium	0.05~0.1%	2~4 Weeks	Possible (31~50%)
2 Low	0.02~0.05%	1~2 Weeks	Unlikely (11~30%)
1 Very Low	< 0.02%	Less than 1 Week	Remote (0~10%)



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Risk management

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Climate Change Risk Management Process

The risk management of GS E&C is classified as business risk management and management environment risk management. The climate change risk management is a risk to be considered for all 2 types of risk management, and it performs the climate change RM throughout the overall process based on company-wide organization such as each business support department, business sector RM organization, Green Environment Team, and more.

The RM activity of GS E&C is implemented in accordance with company-wide "RM procedure", and the risk management is conducted based on the risk process cycle in all processes from the identification and understanding of risk, risk assessment, responding to the risk, and monitoring after responding. These monitoring results are reported to CEO on a regular basis, and material risks are reported to the ESG committee to deal with financial / non-financial impacts in-depth.

Risk Management Process



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Metrics and Targets

Metrics and Targets Used to Assess and Manage the Relevant Climate-related Risks and Opportunities

Climate Change Matrix Management

GS E&C has established and continues to operate the Green Information Management System such as monitoring GHG emissions systematically, and managing environmental performance for continuous measurement of environmental management achievements. Using this Green Information Management System, we monitor company-wide activities for waste discharge and recycling, water use and recycling, green purchase, R&D investment, and more. In addition, GS E&C has established KPI for each environmental result until 2050 to manage achievement of goals. As shown, GS E&C maximizes the efficiency of environmental management by establishing and operating various environment related systems.

Key Performance Indicators

Category	Definition	2021 Goal	2030 Goal	2050 Goal
Annual total GHG emissions (tCO ₂ -e)	GHG reduction in comparison with government allocation	7.43% reduction in comparison with BAU	10.62% reduction in comparison with BAU	31.86% reduction in comparison with BAU
Recycling of waste water (%)	Waste water processing vs. recycling	3.33% or more	10% or more	30% or more
Rate of waste recycling (%)	Occurrence vs. recycling of waste	96.2% or more	98% or more	100%
Green purchase rate (%)	Total purchase of raw material and subsidiary material vs. purchase of green material	10.3% or more	11.8% or more	15% or more
Rate of R&D investment to develop green technology (%)	Total R&D investment vs. R&D investment for green technology	42.7% or more	50% or more	70% or more
Compliance with environmental legislations	Annual number of corporate fines	Annual cases of 0	Annual cases of 0	Annual cases of 0

Management of GHG Emissions

The reduction goal for 2030 NDC was increased by 40% in comparison with the base year in accordance with the announcement of the Carbon Neutrality Plan by the government in Oct. 2021. Accordingly, GS E&C established the GHG reduction goal of 10.62% by 2030 and 31.86% by 2050 in comparison with 2018. The reduction goal for 2021 was 7.43% (emission goal:144,568 tCO₂-e) in comparison with 2018, and the actual emission in 2021 was 112,163 tCO₂-e, which is an excessive achievement of 129% (based on scope 1, 2). In addition, GS E&C has established the GHG mid-to-long term reduction strategy in line with the national Carbon Neutrality declaration and the global trends.

Greenhouse Gas Emission*

(Unit: tCO₂-e)

Category	2017	2018	2019	2020	2021	
Domestic	Scope1	34,275	27,692	34,861	38,422	31,570
	Scope2	74,740	79,324	73,852	70,260	63,524
	Scope3	94,333	94,666	61,869	60,161	60,521
	Total	203,347	201,683	170,582	168,843	155,615
Overseas	Scope1	29,684	43,855	24,132	11,044	14,755
	Scope2	4,733	5,307	2,374	950	2,314
	Scope3	47,469	40,388	47,870	26,910	52,886
	Total	81,886	89,550	74,377	38,905	69,955
All	Scope1	63,959	71,547	58,994	49,466	46,324
	Scope2	79,473	84,631	76,226	71,211	65,838
	Scope3	141,802	135,055	109,739	87,071	113,408
	Total	285,234	291,233	244,959	207,747	225,570

* The verification has been performed in accordance with the verification principles and tasks outlined in ISO 14064-3:2006, IPCC Guideline : 1996/2006, Greenhouse Gas and Energy Management Scheme Guideline : 2020-3.

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Results of Climate Change Goal Management

GS E&C promotes the reduction activity in 4 methods such as energy efficiency, using high-efficient device, energy saving, and eco-driving, to achieve the GHG reduction goal. Energy efficiency includes boiler pressure adjustment, air-conditioning and heating temperature adjustment, and replacement of LED and sensor lights for high-efficiency device. Energy savings include turning off unnecessary places and unused power for energy saving. GS E&C performs and monitors the quantitative index and reduction goals on these various GHG reduction activities through Energy Management Committee, and in 2021, we reduced GHG of 12,052 tCO₂-e.

(Unit: tCO₂-e)

Reduction of GHG emissions		2017	2018	2019	2020	2021
Reduction by energy efficiency	Building	356	625	699	726	460
	On-site	406	569	870	934	855
Reduction by using high-efficient devices	Building	162	110	118	128	37
	On-site	4,022	3,214	1,906	1,633	3,449
Reduction by energy saving	Building	663	1,156	678	487	991
	On-site	1,498	1,835	1,894	726	697
Reduction by eco-driving	Building	106	22	23	23	37
	On-site	1,441	2,071	3,105	3,613	5,527
Total GHG reductions		8,654	9,602	9,293	8,270	12,052

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GS E&C prevents the environmental risks caused by violation of environmental laws / regulations based on the company-wide eco-friendly construction process to keep up with the global trend, and makes various efforts for the minimization of environmental impact. In addition, we have established the climate change strategy in accordance with TCFD recommendations, and we will actively take part in global climate change prevention movements by performing eco-friendly business based on the characteristics of the construction industry. To achieve these environmental management strategies, GS E&C operates various R&D organizations to expand the investment on the development of low-carbon and eco-friendly technologies. Furthermore, we are leading R&D investment seeking sustainable value in preparation for the future.

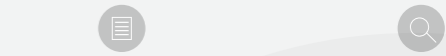
R&D Strategy

R&D costs in 2021

KRW 34,043million

Number of technology development cases

25cases



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Development of Eco-friendly Technology

R&D Strategy

GS E&C is making continuous investments in R&D to prepare for the future by identifying sustainable values. We are enhancing our competitiveness by quickly securing the core technologies necessary for our main business, using core technologies for the new businesses that we are promoting currently, and identifying technologies that improve the productivity of our main businesses. We are also increasing our productivity and work efficiency based on digital-based technologies. In 2022, we launched RIF Tech(Research Institute for Future Technology) to emphasize the company-wide development of eco-friendly technology. Investment in green technologies occupies 36.13% of total R&D investment, which indicates our plans to discover future promising technologies by merging the construction industry and ESG value.

Increasing Investment in Eco-friendly Technologies

In line with the 2030 National GHG Reduction Goal and the 2050 Carbon Neutrality Scenario, GS E&C is increasing its investment in the development of low-carbon and eco-friendly technologies. In particular, through R&D, we are leading the development of eco-friendly technologies in various domains, such as low-carbon, energy-saving, environmental load reduction, and waste and sewage treatment.

On-site Water Saving Technology

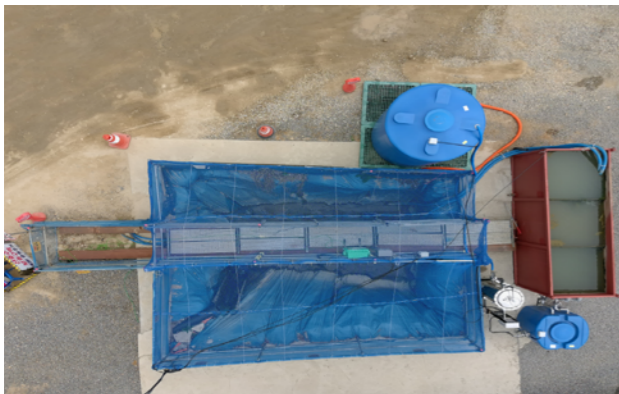
GS E&C plans to prepare and distribute technology standardization guidelines, based on the study of technology for the reuse of underground water at the construction site and the standards of using underground water, etc. Currently, GS E&C tests and applies the recycling of underground water at Northern Suwon Xi Rexvia site, and it is planned to be applied to the construction site of the extension line in Incheon Subway Line 1. Through standardization of the water saving technology, GS E&C expects more than 50% of water saving effects at construction sites. GS E&C has applied this technology on a trial basis on-site to verify its effects, and plans to expand the number of sites where the technology can be applied in the future.

Low-energy, Eco-friendly Seawater Desalination Technology

In view of the increase in the market demand for low-energy, eco-friendly seawater desalination technology and strengthening of regulations on concentrated water from seawater desalination and water reuse plant, GS E&C is developing a salinity difference-based energy recovery system and technology for reduction of marine environmental pollution from the seawater desalination and concentrated water of the water reuse plant, working with Singapore Public Utilities Board(PUB). We expect to save 25% of energy and bring down 40% of salt concentration using this technology. A pilot plant with approximately 240m³/d has been installed and is being operated at the CWRP (Changi Water Reclamation Plant) in Singapore from Mar. 2022.

Biogas Facility Modularization Technology

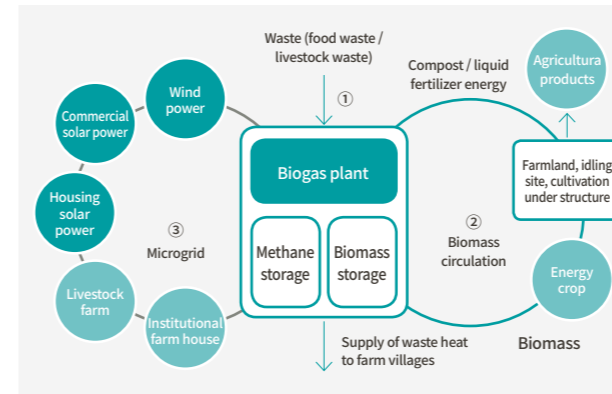
GS E&C is in the process of developing a biogas modularization technology in accordance with the need to accelerate the expansion of energy dispersion under the changed environment policy such as “2050 Carbon Neutrality” goals, and strengthened “Government-led National Greenhouse Gas Reduction”. Based on this technology, we plan to establish an energy ecosystem. We expect to apply the biogas energy ecosystem for related businesses such as slaughter waste, agricultural livestock waste processing, and more.



Site Applied with the Water Saving Technology(Northern Suwon Xi)



Low-energy, Eco-friendly Seawater Desalination Process



Establishment of an Energy Ecosystem

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Safe Workplaces and Information Security

Measures for workplace safety protect employees from accidents and help to increase work efficiency. GS E&C is creating safe workplaces based on its IT-based smart safety management system and on-site signal inspection, etc. In addition, we operate an information leakage monitoring system to protect the customer information collected during the process apartment contract.

Safe Workplaces

Participants in the Safety Innovation School (accumulated)

19,039 persons

Inspection/ Evaluation of the Safety Traffic Signal System

641 times

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Safe Workplaces and Information Security

Safe Workplaces

Safety & Health Management System

GS E&C considers "safety" as a top priority, and to ensure the safety of our employees, GS E&C determines and practices safety and health tasks every year. We have strengthened our safety standards based on the ISO45001:2018 Certification and KOSHA-MS¹⁾ Certificate on sites at home and abroad. In 2021, we enacted and amended the Serious Accidents Punishment Act Procedure for safety management focused on the prevention of severe accidents with the goal of zero severe accidents, and furthermore we expanded the procedure to divisions under CSO²⁾, the relevant divisions of the headquarters, and construction sites, and monitored on a regular basis to check compliance on-site. Especially since falling and equipment failures accounted for 74% of deaths in the recent 5 years, strengthening of measures to prevent these accidents has been selected as our key task.

1) Certified on June 30, 2022
2) Chief Safety Officer

Safety and Health Goals and Tasks for 2022

Slogan *Core Value, Safety!*

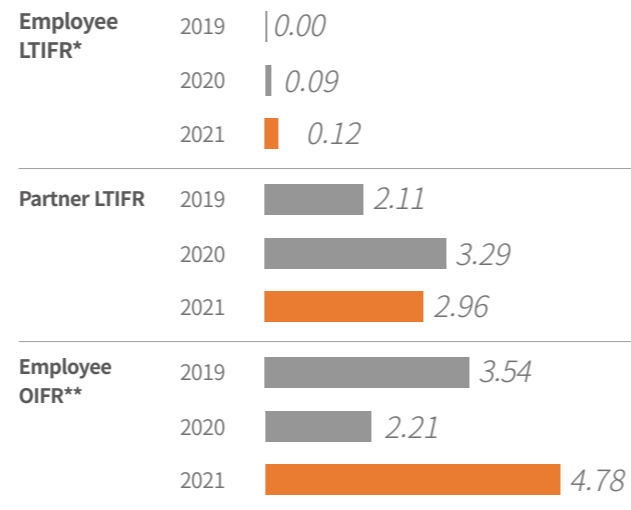
Goal *Zero severe accidents, reduction of general accidents by 10%*

Tasks

- Preliminary management for prevention of falling and equipment failures
- Strengthening construction/safety competency
- Compliance with safety and health laws/performance of corresponding measures

Going forward, GS E&C will strengthen safety to achieve zero serious accidents through intensive management and support for high risk work, provision of equipment inspection education for managers, and strengthening of equipment inspection as well as safety management level through safety and health education. Furthermore, we have set a goal to improve the safety and health level of partners through various support measures for partners. The safety health policy of GS E&C is applied not only to domestic and overseas employees, but also to all personnel of entities that are working with GS E&C including employees of partner companies.

Occupational Injuries Occurring to Employees and Partners



* LTIFR: Lost Time Injury Frequency Rate/ Number of lost time injuries in the reporting period / Total hours worked in the reporting period x 1,000,000
** OIFR: Occupational Illness Frequency Rate/ Number of occupational illnesses in the reporting period (No. of persons who report an occupational illness or No. of occupational illness cases) / Total hours worked in the reporting period x 1,000,000

Prevention of Construction Accidents

On-site Signal Light and Equipment Safety Inspection

GS E&C operates a Safety Traffic Signal System that automatically manages the differentiated safety level based on Green, Yellow, and Red color. We hold workshops and on-site inspection every month for sites that receive a lower grade, to check the compliance at the work site. Using a checklist, we inspect the danger elements at the work sites without any omission and strengthen the review of legal documents related to safety and health in compliance with the Serious Accidents Punishment Act. To prevent accidents involving construction machinery and equipment, which may result in severe injuries, we support the preliminary inspection of high-risk construction machinery (tower crane, construction lift, large mobile crane, pile driver) for 100% coverage, and we conduct theme-based inspection on construction machinery twice every month. Along with the advanced knowhow and expertise in the development of construction sites, the competency of staff responsible for equipment management is of growing importance. As a part of efforts to secure and foster core talents, we recruited two additional staffs responsible for equipment management in 2021, and put efforts for fostering talent with various contents and systematic education. The "carrying-in and use criteria guidance" for each equipment is enacted and amended to assist in the work of staff responsible for equipment management. In future, GS E&C will secure and foster talents with various experiences and skill sets to strengthen the on-site and equipment safety inspection and put in efforts to make a safer workplace.

Safety Traffic Signal System Status (Unit: Times)

Category	Safety signal evaluation	Early / Interim inspection	Support inspection	Total
2020	86	262	223	572
2021	147	389	105	641

Tower Crane Inspection Status (Unit: Times)

Description	2020	2021
Supervision of installation and dismantlement	148	247
Supervision of ascending and descending work	155	275

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Safe Workplaces and Information Security

Highlight. Safety Innovation School

GS E&C has been operating Safety Innovation School since 2006 and providing safety training for on-site workers at the construction sites since 2015. Safety Innovation School provides the safety health education on each life cycle (beginner, competency enhancement, advanced, and professional) and each job group (construction group, management group) for trying to make the safe workplace and to foster the talent. In addition, we provide the safety education on new business sector and operate the win-win partnership training for our clients and contractors to improve the safety health level of partners. At the Smart Safety & Health Training Center of Safety Innovation School, we provide the safety education using VR and AR in reflection of the change of education paradigm in accordance with the 4th industrial development. At the Safety & Health Training Center, we established tower crane training center, fire laboratory, etc. to make various practices and experiments possible, and at the construction accident experience center, you can have various experiences in connection with VR experience such as safety belt, closed space, etc. To minimize the level deviation of safety health education on each site, we produced and distributed Safety Innovation School (SIS) Tube, a non-face-to-face video training content. In addition, we provided it to be used at the on-site such as sharing risk elements and precaution, etc. upon the morning safety meeting and TBM.



SIS Tube Training Video



ISO Certificate (ISO29993:2017)

Performance of Safety Innovation School (Unit: Person, times)

Category	2019	2020	2021
No. of employees who completed training (accumulated)	11,793	17,698	19,039
Workplace-visit training	149	61	48



Smart Safety & Health Training Center - VR Experience



Construction accident experience center - Working at height experience

Certified for the Education & Training Management System

In August 2018, GS E&C Safety Innovation School was certified for its education and training management system (ISO 29993:2017) by the International Standard Organization (ISO) for the first time in the Korean construction industry, and we are maintaining our certification status in 2021 and ensuring international trust. To provide practical safety training applicable to the rapidly changing business environment, we have formed and continue to operate the Curriculum Development Deliberation Committee consisting of on-site employees and experts. In line with the increasing social emphasis on safety as indicated by trends such as the enforcement of the Serious Accidents Punishment Act, in 2021. We additionally organized and operated a special course for the prevention of general accident involving workers.

Safety Innovation School Curriculum

Category	Safety and health manager		Construction	BM	Coexistence & Cooperation
Lv.4 (15 years~)	Training on safety and health duties (Maintenance)	Intensification of safety and health management (Leadership)	Expertise in the construction job group (CM)	Intensification of BM (New course)	Partners' on-site managers (Person in charge)
Lv.3 (9 ~14 years)			Intensification of the construction job group		
Lv.2 (5 ~8 years)	Safety and health competencies (Lecturer course)		Competencies of the construction group	BM competencies	Partners' safety managers
Lv.1 (~ 4 years)	Training on safety and health duties (New/maintenance)	Introduction of safety and health for general positions (New / career)	Introduction of the construction job group (New / career)	BM introduction	

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Safe Workplaces and Information Security

Enhancing Preliminary Safety Review

GS E&C is operating the Pre-Construction Meeting (PCM) system to prevent accidents. We made PCM compulsory before commencement of construction for processes involving high-risk and safety vulnerabilities at all construction sites, to support the establishment of an overall safety management system and to identify and eliminate the risk elements preemptively. The field PCM has been expanded to the infrastructure site with wide working section to educate the on-site workers directly on the contents of PCM and thereby eliminate the risk element in advance. Once the safety management system is established, the performance status of the safety plan is checked to prevent safety accidents and to achieve a safe construction environment.

New Structure Technical Safety Inspection Team

GS E&C has established the New Structure Technical Safety Inspection Team to reinforce the safe construction of buildings. The social demand for safe buildings has increased more than ever due to collapse accidents involving structures constructed by other companies. In line with this trend, a structure technical safety inspection team implements the preliminary technical education and checks the construction status upon commencement of construction for the safe completion of building construction through the prevention of building collapse accidents.

Fostering Experts in Equipment

GS E&C fosters experts in equipment to promote workplace safety. Employees with interests in construction equipment are selected among the safety managers, and the accompanied practical education for more than 1 week is carried out upon on-site inspection by the safety inspection team, and video training is provided every week. In addition, equipment specialists are designated in charge of only equipment-related tasks to lower the burden on such personnel and to foster them as equipment specialists.

Smart Safety Management Systems

GS E&C prevents accidents to safeguard workers' safety at dangerous sites and implement high-risk works using equipment based on IT technology of the Fourth Industrial Revolution. We introduced a CCTV Monitoring System (CMS) for all sites and established smart safety management systems—such as intelligent CCTVs, Real-Time Location System (RTLS), and Internet Bluetooth of Things (IBOT)—to check safety in real time even in an environment with poor communications and to help workers evacuate swiftly in case of an emergency. We manage the deployment of construction site and on-site materials using drones to create safer construction sites.

Features of Smart Safety Management Systems

CMS	Enables remote monitoring of dangerous behaviors and unstable temporary facilities
Intelligent CCTVs	Detect fire, smoke, and other abnormal situations and broadcast warning messages
RTLS	Real-time safety monitoring of workers in tunnels and underground
Webcam	Detect and record motions in confined spaces and high-risk work zones
Neckband camera	Mobile filming and recording
IBOT	Real-time monitoring based on a wireless communications network in the entire underground site
Four-legged robot (DuRobot)	Equipped with a 360-degree camera and IoT sensors
Drone	A flying object that operates in accordance with the guidance of radio waves



Monitoring using CMS



Check the on-site deployment using a drone

Chemical Safety Management

GS E&C pursues safe management of chemicals and helps workers handle the substances in a proper way. In Korea, we comply with the Occupational Safety and Health Act and prepare and place material safety data sheets (MSDS¹⁾) at all business sites that convey, store, and handle chemicals. The chemicals are handled safely in accordance with the chemical handling and storage standards, and we inspect chemical storage facilities once a week or more frequently based on the chemical handling checklist to prevent accidents that may occur due to poor management and use of chemicals. Chemical substances are managed in compliance with local environmental laws to prevent accidents that may occur during the business in advance.

1) Material Safety Data Sheet: Contains information required for the safe use and management of chemicals

Responding to COVID-19 at Domestic / International Sites

To prevent the occurrence and spread of COVID-19, GS E&C prepares rules for responding to COVID-19 on-site to lead the realization of safe workplaces. At all domestic / international sites, we encourage employees to comply with the rules for responding to COVID-19 on-site. The measurement and recording of employees' body temperature are compulsory, and furthermore we furnish hand sanitizers and masks at the entrance, bathroom, etc. of all domestic/international sites, and implement disinfection on a regular basis to prevent the occurrence and spread of COVID-19. In the event of COVID-19 confirmed cases, we ask the personnel in charge to respond in accordance with the COVID-19 behavior guidance to resolve anxiety among employees and to prevent the occurrence and spread of infectious diseases.

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Safety Managers

GS E&C operates the safety manager system to prevent the safety accidents that may occur at infrastructure construction sites with high-risk such as tunnels, highways, ports, etc. as well as extra-large project construction sites. Based on technical competence and abundant experience, a person who can manage safety is appointed as the head of the safety department to oversee overall on-site safety. GS E&C plans to strengthen the technical safety management in connection with the construction business and expand the coverage of the safety manager system to all sites with a goal of zero serious accidents.

BOD and Executives' Safety and Health Management Activities

GS E&C's CEO and CSO visit the sites and check on safety on a regular basis to enhance employees' awareness of safety and to encourage them to work hard to strengthen safety. In 2021, there were 12 on-site safety management activities by the CEO and 93 on-site safety management activities by the CSO. We added the number of safety inspections conducted and the number of critical injuries to the executive KPIs so as to improve the level of executives' responsibility for safety. The CEO and CSO participated in the safety health meetings held each quarter to listen to the voices of on-site employees and create a safe workplace, as well as took part in the Q· HSE Operation Committee and Technical Safety Committee to reinforce workplace safety. The Safety Health Committee and safety health manager video conference supervised by the head of the business headquarter were held to strengthen the operation of the safety and health meeting system, and the matters that were discussed at the meeting were delivered to the sites to increase the safety level at the sites. In addition, the BOD reviewed and approved the safety health plan in accordance with the Occupational Safety and Health Act for the prevention of safety accidents, and we plan to focus continuously on the prevention of safety accidents for enhancing workplace safety.



Picture of CEO's visit to site (Songdo Xi Crystal Ocean)

Reinforcing Partners' Safety Management through Incentives

To encourage partners to pursue safety management voluntarily, enhance their capability for prevention of serious accidents, and instill a higher level of construction safety awareness, GS E&C provides incentives for partners that show good safety performance. We conduct a safety evaluation on all processes and give incentives for seven partners selected as Safety Champions every year. An exclusive contract right is granted to the top 2 partners for once each and the bid participation right is granted to other top five partners for three times each. On the other hand, partners with excessive industrial accidents will not be granted with the right to participate in bidding. The partners' incentives system is an exemplary case of win-win management to induce partners to participate in safety management voluntarily and to increase the use of partners with excellent capability.

Safety Management for Foreign Workers

Foreigners account for about 30% of our on-site workers, and to enhance their awareness of safety and to prevent accidents that may occur due to the lack of communication, GS E&C provides safety and health training in different languages on a regular basis. In addition, we use an interpreter to facilitate communication between foreign workers and employees, and use various methods to foster safety awareness for foreign workers by posting banners in their native language.

Response to Safety Accidents

GS E&C has a systematic accident reporting and response process to ensure swift and appropriate response upon the occurrence of a safety accident. General accidents must be reported within 30 minutes after they are detected, and emergency cases including severe accidents are required to be reported as soon as they are detected. Upon the occurrence of an accident, each related department with priority given to the safety health team is dispatched to the site to investigate the accident in accordance with the safety accident response process and examine the cause for the accident. When the cause for the safety accident is identified, preventive measures are established to prevent the re-occurrence of the same type of accident. In addition, we implement continuous inspections to ensure preventive measures are actually applied at the site.

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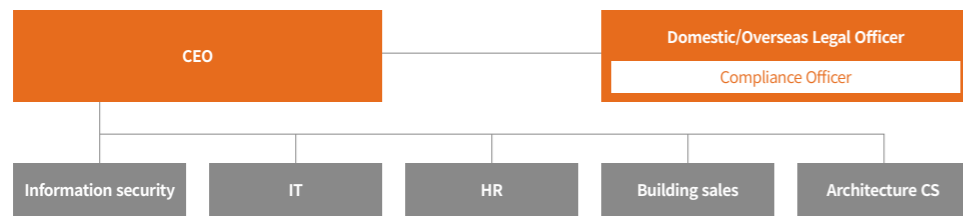
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Information Security

Information Security System

GS E&C has established the company-wide information protection policy, and operates the “Information Protection and Personal Information Protection Committee” to prevent the leakage of personal information through the correct implementation of the policy. The Committee is composed of executives of related organizations to handle the establishment and implementation of a company-wide information security policy. Safe Workplaces and Information Security. In addition, GS E&C strives for the correct performance of relevant policy through the appointment of top responsible person in accordance with the work and designation conditions such as information protection and Personal Information Protection Act, etc.

Information Security and Personal Information Protection Committee



Roles and Responsibilities of Information Security Divisions

Information security	<ul style="list-style-type: none"> Establish, manage, and operate the information protection management system Check the status of the head office, subsidiaries, and related companies, and provide security guidelines Establishment and performance of the personal information protection education plan Monitoring of the security system and responding to accidents, etc. upon information leakage
IT	<ul style="list-style-type: none"> System authority related to the management of personal information Implementation of system security measures related to personal information Regulating the procedures for personal information protection work processing, etc.
HR	<ul style="list-style-type: none"> Management of applicant information upon recruitment and the disposal of information after the completion of recruitment Request for consent regarding personal information protection activity of employees upon recruitment Employee information management, etc.
Building sales	<ul style="list-style-type: none"> Review of the Personal Information Protection Act and its reflection in business activities Management of on-site employees who handle customer information Building a sales management system, customer information management, etc.
Architecture CS	<ul style="list-style-type: none"> Management of the consignor company and its employees who handle the customer information after moving-in Management of on-site employees who handle customer information, etc.

Activity for Strengthening of Information Protection Capabilities

Information Protection and Personal Information Protection System (ISMS-P)

GS E&C put in efforts for the acquisition of the ISMS-P Certificate, which proves the appropriateness of measures and activities for information protection and personal information protection based on criteria set by the certification authority. With the activity for establishment of the basis for ISMS-P certification concluded in 2021, we plan to proceed with the consulting in the first half of 2022 and to receive the final certification in the second half of 2022 after screening and supplemental measures. Through acquisition of the ISMS-P Certificate, we expect to prevent the damages incurred from security accidents, improve the safety of business, and enhance the company image and reliability in relation with information protection.

Protection of Information Assets

GS E&C is operating an information system according to the information asset security guidelines for the protection of information assets. We fundamentally block unnecessary access to key information and control information leakage through stringent management of the access privilege through the establishment of database access control solutions. The access records (logs) of persons to key information are stored automatically, and we try to prevent the leakage of key information through monitoring on a regular basis. As a result, there were no cases of technology and information leakage and personal information leakage in 2020 and 2021. In particular, we invested 5.5% of the entire IT budget such as system development & maintenance, software maintenance, in information protection and in future, we will continuously invest in information protection to protect the information assets and prevent leakage.

Information Security Performance 2020

Preemptive Improvement on Vulnerabilities through Security Inspection

GS E&C is improving the level of information security by identifying security vulnerabilities preemptively through regular security inspections and monitoring. We perform scheduled security inspections on the information protection status and implement responsibility-based security inspections to inspect domestic and overseas project sites, to improve any problems occurring from the inspection process and to establish measures for the prevention of re-occurrence. In 2021, we diagnosed the Xi App and SPACE App to identify the vulnerabilities, and the improvement work was carried out. In the first half of 2022, we implemented two simulation trainings to respond to hacking mail to lower the attack ratio, and in the future, we plan to expand and implement simulation training on hacking mail for all employees.

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Strengthening the Full-time Security System through “Security Practice Day”

GS E&C designated the “Security Practice Day” to raise awareness on information security and to encourage employees’ practice of security in daily activities. On “Security Practice Day”, the third Friday of every month, every department implements self-inspection on security in daily activities. We check compliance with the guidelines for security management of information assets in terms such as configuration of the screen saver, computer password change, deletion of employees’ personal information, etc. and the practice of “9 Habits of Security Practice” in daily activities. Communal areas with vulnerable information security are inspected by security officers in each team to eliminate any blind-spots of information security. In order to identify security vulnerabilities of PCs, we are striving to prevent information leakage by supporting various programs for information security, from “My PC Keeper” to malicious file blocking programs that prevent ransomware infection through e-mail attachments.

9 habits of security in the daily life of employees

 <p>IT Security</p>	<p>Any acts that may cause outside leakage of corporate information and personal information are strictly prohibited.</p> <ul style="list-style-type: none"> • Legitimate approval procedure, USB management, prohibition of sending e-mail to the outside, words and acts & SMS <p>Follow the information security guidance and do not use illegal S/W.</p> <ul style="list-style-type: none"> • Information security guidance on the upper right side within EP, screen saver <p>Unnecessary files stored in the PC must be deleted immediately.</p> <ul style="list-style-type: none"> • Periodic inspection, prohibition of long-term storage, arrangement of email material
 <p>Document security</p>	<p>Minimize the document print outs.</p> <ul style="list-style-type: none"> • Minimize the printing out of reports, and use the in-house electronic system <p>The hard copies shall be disposed of appropriately once the reporting is completed.</p> <ul style="list-style-type: none"> • Use of document collection cabinet or shredder, prohibition of negligence regarding print outs and disposed documents <p>The important documents shall be stored in a safe storage cabinet.</p> <ul style="list-style-type: none"> • Prohibition of private storage, department document cabinet with locking device
 <p>Working environment</p>	<p>Maintain a pleasant working environment with proper arrangement.</p> <ul style="list-style-type: none"> • Clean desk, white board after closing the meeting, clean the area near the multifunction printer, etc. <p>Look around before you leave the office.</p> <ul style="list-style-type: none"> • Organize personal items, calendar, notebook, memo, attachment, etc. neatly, turn off PC <p>A Friday on the 3rd week of every month is observed as the “Daily life security day”.</p> <ul style="list-style-type: none"> • Organize documents, PC file / mail inbox

Customer Information Protection through Field Monitoring

GS E&C safely manages customers’ personal information by establishing the personal information handling system to protect customers’ personal information working with employees and partners. Upon the collection of customers’ personal information, we provide the customer with an advisory regarding the personal information processing policy and receive consent for collection/use/provision of personal information. A large amount of customers’ personal information is handled during the building sales process, and therefore we implement the information protection and personal information protection education for employees upon the opening of a sales office. Furthermore, the personal information is managed under encryption, and we protect the customer information through the VPN Internet system and installation of security software. In addition, we implement education on personal information protection for employees, and check the implementation status of information security on the field through inspections. We receive the Ministry of Public Administration and Security’s inspection on personal information management status and strive to resolve any problem to prevent the leakage of customer information in advance.

Bolstering Employees’ Information Protection Competency through Information Security Education

GS E&C provides education on information security in order to bolster employees’ information security competency and to prevent information security accidents. The information security officer of each team completes the education and spreads it to each team so that all employees are aware of the contents of information security education. In the first half of 2022, we implemented the information protection and personal information protection education for the security officers, and the information security education for employees that are involved directly/indirectly in jobs related to architecture performance HQ to reinforce the information security capability of employees. For new and experienced employees it is mandatory to complete the education upon joining the company. In particular, GS E&C shares the accident cases involving phishing or impersonation of public agencies and the police so as to prevent the occurrence of information security accidents. We encourage all employees to take the information protection pledge in order to strengthen their recognition of the importance of information security.



Picture of information security education for employees

Report and Response of Information Security Safety Accidents

Upon the occurrence of an information protection safety accident, GS E&C composes the information violation incident response team to promptly respond and minimize the damage. When an information protection safety accident occurs or is suspected, it is immediately reported to the information protection officer in accordance with the personal information violation incident response guidelines, and is processed in accordance with the safety accident response procedure. Upon the occurrence of an information protection safety accident, the information violation incident response team identifies the course of the accident, investigates the related persons, and takes measures to destroy or retrieve the leaked information. Furthermore, we identify the cause of occurrence in order to establish measures and prevent the occurrence of similar safety accidents in collaboration with outside experts, if necessary.

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A happy organizational culture motivates employees and induces job commitment and self-directed learning. We help our employees to develop their job competencies through our own talent cultivation system and the self-directed learning support program “Study with Me.” Furthermore, we strive to establish a happy corporate culture with various welfare systems. In addition, GS E&C has enacted the human rights charter and prevents human rights risk elements through inspections on human rights risks in line with the global trend of emphasizing human rights.

Talented Workforce

Training hours per person

46.3 hours

Participants of global talented workforce education

2,608 persons

Happy Corporate Culture

Number of employees taking parental leave (Male/female)

130 / 87 persons

Participants of the Stress Zero Program

1,139 persons

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Talent Management and Respect for Diversity

Securing and Fostering Key Talents

System for Securing and Fostering Key Talents

Talent Fostering System

For us at GS E&C, the concept of talent is “a trusted person, who leads the change and aims for the best.” In line with this vision, we operate own talent fostering system comprised of leadership, job competency, and global competency programs. Different curricula are provided to various employees depending on their ranks and duties. In 2021, we expanded and implemented the middle management leadership education program within the construction performance HQ, and expanded non-face-to-face training using “Virtual Studio” to develop employees’ expertise and competency. In addition, we operate the internal public offering system, an internal recruitment system to provide various opportunities for employees.

Talent Fostering System

Program	Curriculum	No. of employees
Leadership	Growing as desirable leaders Executives and team leaders • Leadership diagnosis and training • Encouraging change in leadership behaviors • Implementation of leadership training for the middle management	7,059
Job competency	Growing as competent talents Employees • Improving employees’ practical job competencies • Training depending on the job competency level • Training for transferred/newly assigned employees • Training in new business Artificial intelligence (AI) training	18,691
Global	Growing as global talents Employees and executives • Improving job competencies for overseas business • Language training	2,608

Talent Fostering Performance

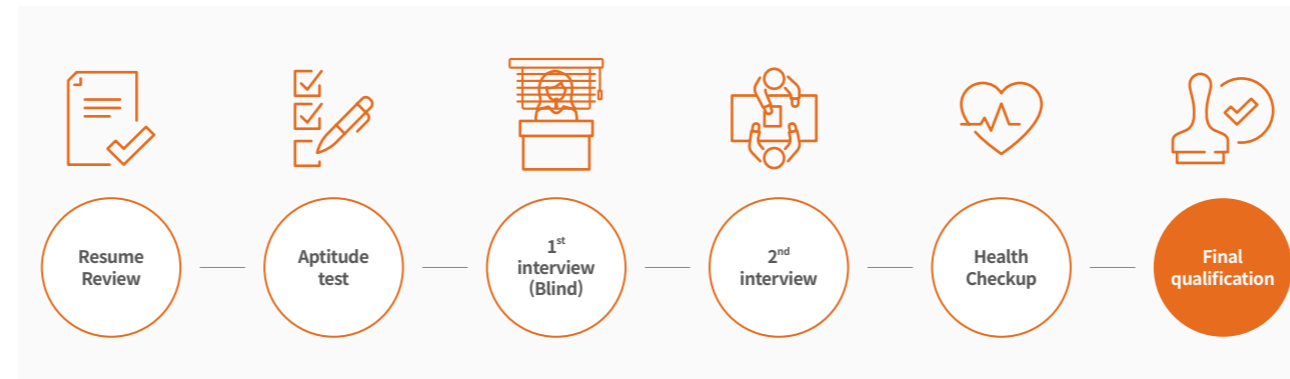
(Unit: persons, KRW 100 million, hours)

Category	2019	2020	2021
No. of employees who have completed the program (accumulated)	34,618	29,425	28,358
Training expenses	19.2	14.4	18.4
Training hours per person	44.8	28.9	46.3

Transparent Hiring Process

GS E&C complies with the Fair Hiring Procedure Act and provides equal opportunities to all qualified applicants according to its fair hiring procedure. For the first interview of applicants to permanent positions, we conduct a blind interview, where the interviewers are not given any information about the applicants’ background so that interviewers focus on job competency evaluation. For hiring career employees and contract employees, we follow the hiring process for fair hiring. We operate a recruitment-linked internship program to expand the hiring opportunities and secure talented workforce preemptively. In addition, we disclose the hiring process on the company’s official website, blog, and YouTube channel and introduce various duties for applicants interested in applying to GS E&C.

New Employee Hiring Process



No. of Hired Career Workers and New Workers

(Unit: Person)

Category	2019	2020	2021
Male	19	9	44
Female	4	2	3
Total	23	11	47

2022 Current Status of Hiring Type

(Unit: Person)

Category	Male	Female
Affiliation workers		
Permanent position	3,639	251
Temporary positions	1,167	347
Non-affiliation workers	11,560	981
Total	16,366	1,579

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Event for Sharing New Business Promotion Status

GS E&C conducted an event to share the status of promoting new businesses to improve employees' understanding of new businesses and cultivate sympathy for the company's vision on new businesses. Experts from each new business introduced the new business to employees with Q&A, and tried to respond to employee's curiosity regarding the new business. The image of the new business sharing event is uploaded online with related materials for inquiry at any time, and we have introduced measures to assist employees who want to perform work related to the new business.

Language Training Program

GS E&C offers English training programs to improve its employees' English proficiency to global level. Working with in-house language instructors, we develop and operate various curricula such as GIC¹⁾ and Business Speaking, and implement GST²⁾, an English verification test developed by GS E&C. In 2021, we launched seven sessions of two-month intensive group training for key talents, and enhanced our employees' access to language training programs through on-line platform-based VOCA programs such as the GS E&C English podcast and KakaoTalk. In future, we plan to provide various education programs to improve the competency of each employee after we divide GIC into intermediate classes and advance classes and implement education for each level along with a customized language subscription service.

1) Global Intensive Course

2) GS E&C Speaking Test: English speaking test developed by GS E&C

Artificial Intelligence (AI) Training

In line with the trend of introducing Artificial Intelligence (AI) at the construction site, GS E&C carried out artificial intelligence education to secure business competency through the understanding of core technology related to artificial intelligence. Employees who participated in the education entered the actual data and deduced the results, and considered how to use artificial intelligence in business. To acquire the capabilities to introduce and use new technology instead of being left behind, GS E&C plans to monitor the development of technology and provide the related education to its employees on a regular basis.

Retiree Training

To help retirees adapt to society, GS E&C provides re-employment support programs for employees who are aged 50 or older experiencing involuntary turnover and contract employees whose employment contract has expired. The life and career design training was implemented 3 times based on subjects such as finding jobs and mental health management, etc. for 53 employees, who are in the salary peak system. We provided career move support service for social adaptation of retirees, as well as counseling and job placement services for employees who experience involuntary turnover.

2021 Turnover Status for Each Type

(Unit: Person)

Category	Displaced workers	Turnover rate ¹⁾
Voluntary turnover	296	5.4%
Others except the voluntary turnover	41	0.8%
Total displaced workers	337	6.2%

1) This is a ration in comparison with a total number of 5,433 persons.

2021 No. of Retirees Based on the Age and Gender

(Unit: Person)

Category	Male	Female	Total
Less than 30	1	1	2
30 ~ 50 or less	254	30	284
51 or more	50	1	51
Total	305	32	337

Effective Utilization of Talents through the HR System

GS E&C operates a HR system that integrates employees' information including appointment, education, assessment, promotion, etc. to utilize the talents effectively. Optimized personnel management is made possible by identifying the competency of employees effectively through the HR system and providing appropriate jobs. GS E&C plans to develop and operate a more sophisticated HR system for the growth of employees and creation of synergy effects in terms of organizational growth.

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Employee Diversity

Assisting Foreign Workers' Settlement

As of the end of 2021, GS E&C employs 1,265 foreign workers with various nationalities. The foreign workers are divided into Global Permanent (GP), Global Contract (GC), Global Assistant (GA), and Global Technician (GT) categories. From 2015, we have established and implemented an integrated HR policy for GPs, and we have been applying the same rights and responsibilities as Korean employees, except wages, to foreign workers. We provide performance-based pay each year for GPs and Headquarters GCs. Furthermore, we analyze the global market standards for annual salary, benefits and terms on a regular basis to reflect the results in our internal standards, and the salary is increased through negotiation every year. In addition, we published an English newsletter for foreign workers twice in 2021 to increase foreign workers' understanding of the organization and to support stable settlement.



April 2021 English Newsletter

Equal Opportunity through Inclusive Hiring

GS E&C operates an inclusive hiring policy for disabled and veterans in order to provide them with equal opportunities. We check on each site regarding compliance with the compulsory hiring system for persons with disabilities, and make efforts to hire more disabled persons in cooperation with Korea Employment Agency for the Disabled. In addition, we grant an additional point for hiring more persons entitled to veterans' benefits upon hiring.

Employees with Disabilities and Persons Entitled to Veterans' Benefits

(Unit: Person)

Category	2019	2020	2021
Employees with disabilities	126	115	99
Employee entitled to veterans' benefits	97	109	90

Securing and Support for Female Employees

GS E&C operates various policies to secure female employees and to support their growth. With no discrimination factors present against female applicants in our recruitment process, we provide equal opportunities for qualified applicants. After hiring, we follow an equal HR management policy regardless of the employees' gender, and the salary system is equal, so all male and female employees of GS E&C receive the same salary based on the same criteria. GS E&C also supports the growth of female employees by providing various trainings through on-line and group training, and there is no restriction for female employees working in profit-generating department. We will continuously review and establish a plan to improve the work environment and hiring system for female employees.

Female Employee Ratio

(Unit: %)

Category	2019	2020	2021
Female employees and executives	9.5	10.3	10.7
Female management staff ¹⁾	1.6	2.6	1.9
Female employees in management positions in profit-generating department ²⁾	6.0	5.5	4.4

1) Ratio of female employees in management staff position or higher among the entire female employees and executives
 2) More than responsibility A or higher among female employees in construction and sales related duties

Evaluation and Remuneration

Fair and Objective Performance Evaluation using Various Methods

GS E&C evaluates the performance of employees in a fair and objective manner. Performance is divided into achievements and competencies for evaluation and management, and we utilize a variety of evaluation methods, such as MBO¹⁾, multi-faceted evaluation, and relative performance evaluation, to ensure fair assessment. In addition, the evaluation grade is determined through an evaluation coordination meeting attended by all executives within each business division and headquarters, and the results are verified through HR monitoring for enhancing objectivity.

1) Management By Objectives: A performance evaluation system that measures each employee's achievement level according to their goals

Reasonable Remuneration System without Discrimination

GS E&C operates a performance-based remuneration system to ensure reasonable remuneration for employees. Individual performance is reflected in employee salaries and promotions to keep them motivated, and we also give them feedback for their competency development. We give additional rewards for organizations that make an outstanding accomplishment but also organizational performance. GS E&C only evaluates the accomplishment of individuals and organizations without considerations of gender or race, so that we can contribute to the improvement of social equity.

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Human Rights Management

Human Rights Management System

GS E&C adheres to the international standards and guideline related to human rights labor such as Universal Declaration of Human Rights, UN Guiding Principles on Business and Human Rights, etc. through the enactment of the Human Rights Charter, and manages human rights effectively. We take measures to minimize violations of human rights etc. that may occur from corporate activities and prevent violations in advance. We identify human rights risk elements through human rights evaluation and physical inspection of compliance with the principles of human rights, and implement human rights education for employees to improve human rights awareness and establish a sound corporate culture.

Efforts to Human Rights Management

Human Rights Training for Employees

GS E&C provides human rights training to create a corporate culture that encourages free communication and respect for diversity, in order to prevent human rights violations in advance and to ensure respect for employees' human rights. We made thorough prevention measures in areas with human rights vulnerabilities such as gender, nationality, through education for prevention of sexual harassment, education on each cultural area upon entering the business, In addition, we offer GS E&C human rights policy training for our partners to encourage them to comply with our policy.

Fundamental principles of the Human Rights Charter

1. Non-discrimination
2. Compliance with labor conditions
3. Humanitarian treatment
4. Freedom of association and collective bargaining
5. Prohibition of forced labor and child labor
6. Guarantee of occupational safety
7. Responsible supply network management
8. Protection of local residents' human rights
9. Protection of customers' human rights

Efforts to Strengthen Respect for Diversity

GS E&C respects the diversity of employees' culture and religion. We install and operate a Muslim prayer room within the head office building for Muslim employees who suffer in Korea for religious reasons. In addition, we provide guidance to Islamic mosques and halal restaurants in downtown Seoul to help minimize the inconvenience due to religious reasons.

Human Rights Assessment and Human Rights Physical Inspection for the Prevention of Human Rights Risks

GS E&C conducts a survey on human rights status and influence assessment every year to prevent human rights violations preemptively. Utilizing the survey on human rights status and influence assessment intended for our employees as well as those of our partners, subsidiaries, and joint ventures, we strive to analyze grievances that may occur at business sites and find more fundamental solutions. In 2021, we conducted the assessment on 12 human rights issues targeting 383 employees. The occurrence possibility of human rights violation is assessed to be very low at 2.2 points on a 7-point scale. In addition, GS E&C establishes and implements a human rights physical inspection process. We prepare the human rights physical inspection checklist and implement the human rights physical inspection mostly at domestic sites. After the human rights physical inspection, methods for improvement are deduced based on the inspection results, and we promote the sharing of results and improvement tasks with related departments and facilitate the improvement work.

In the first half of 2022, we implemented the human rights physical inspection on 6 sites. We explained the method for preparation of employment agreement and retirement documents, compliance with working hours and holidays, and legal standards related to the procedure for termination of employment relationship, and shared the precautions to be taken in the process of management. In addition, we improved insufficient matters that were identified on-site. In future, we plan to expand the scope of human rights physical inspection, and to diversify and advance the human rights physical inspection checklist. Using the human rights assessment and human rights physical inspection for reference, we will continue our efforts to protect human rights in our entire business process.

Human Rights Risk Analysis

(Unit: Point, 7-Point scale)



1 point: Not at all; 4 points: Normal; 7 points: Very high



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Talent Management and Respect for Diversity

Happy Corporate Culture

Revitalization of the Organizational Culture

Improving Organizational Competency

GS E&C is steadily analyzing and improving the organizational culture so that our employees can exert their full competence as much as possible. We continuously promote activities for the improvement of organizational culture to achieve creative innovation through the organizational culture campaign. Besides, GS E&C shares our in-house PR materials “Haeubo” to form a satisfying organizational culture and to expand communication.



“Haeubo” published in Dec. 2021

CA (Change Agent) to Establish an Open Communication Culture

GS E&C is operating the Change Agent (CA) system to improve its organizational competencies and promote internal communication. CA is a person leading the change in organizational culture, and leads the GS E&C culture through communication with various members. The CA, who collects employees’ opinions and plays the role of an agent, plans and implements the competency improvement activity at the organizational level to contribute to the development of GS E&C.

Operation of Team Building Workshop for Strengthening Intra-Organizational Cooperation

GS E&C holds Team Building Workshop to enhance intra-organizational cooperation through the enhancement of teamwork. Any new or reorganized organization, organizations that witnessed a change in the personnel composition, or simply all organizations that want to improve cooperation and communication between employees, can take part in the team building workshop to strengthen teamwork and establish a foundation for cooperation and communication. The organization participating in the team building workshop establishes the organizational vision and goals, strives to expand mutual understanding based on Birkman Method¹⁾ and enacts the organization’s rules to enhance cooperation and improve achievements.

1) Birkman Method: A diagnosis technique with 4 colors and 5 symbols, used to understand a person from various perspectives



Composition of the Team Building Workshop

Support for Voluntary Learning

Operation of “Study with ME”

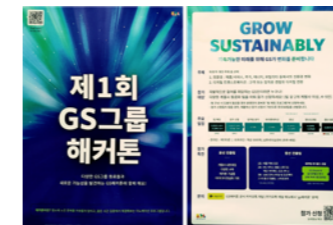
GS E&C offers the “Study with Me (SWM)” program to cultivate a voluntary learning culture and develop employees’ problem-solving skills. This program is conducted according to the study schedule and curriculum planned by employees, and provided with various themes such as self-study as well as work-related subjects. In future, we plan to expand the operation of the SWM program in the off-line mode as well as on-line, and expect more employees to participate with more various subjects.

2021 ‘Study with ME (SWM)’ Course and Number of Participants

Category	Course	No. of participants
Work	Construction industry trends, precedents, etc.	14
Financial Accounting	Analysis of financial statement, accounting, etc.	13
Digital Transformation	Python, coding, etc.	21
Language	English, Vietnamese language, etc.	15
Others	Speech, video editing, etc.	18

Opening of Hackathon Based on the Subject of the Sustainable Development of the GS Group

Based on the Hackathon program, GS E&C held the first event in Jun. 2022. Hackathon is an innovation program that encourages employees to speak freely on general problems and focus on solving such problems in a short period of time. In Apr. 2021, a total of 36 voluntary participants presented their ideas under the theme of the utilization of public data for public interests. It was expanded as a group program and implemented in Jun. 2022. Voluntary participants of the program will consider ideas/suggestions under the theme of sustainable development to present solutions.



Picture of the First GS Group Hackathon

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Talent Management and Respect for Diversity

Welfare Benefits for Employees

Creating a Great Work Environment

With a view to creating a desirable work environment, GS E&C is putting forth the efforts to cultivate an advanced organizational culture including aspects such as leaving work on time and casual office wear. We strive to establish a horizontal culture by introducing a title system to use the name of duty for executives and the name of responsibility for employees. The Stress Zero Program provides counseling and on-line mental health checkup services to help employees relieve their work stress and improve their mental health, and this program can also be used by the immediate family members of employees. In addition, we support executives to enhance their business performance by subscribing for a liability insurance plan at the company's expense, and insurance coverage for the actual medical expense is provided for employees and executives and their spouses to create an environment where they can focus on the work.

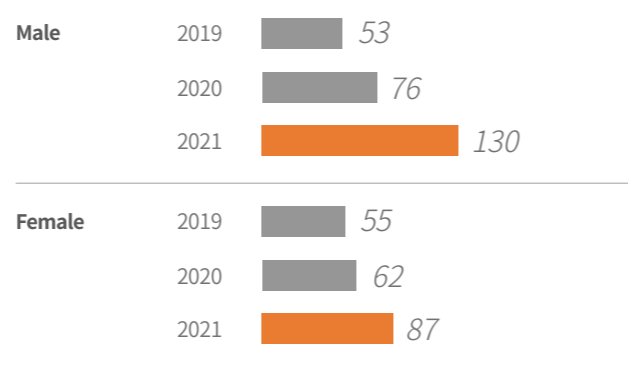
Working Hours Management System

GS E&C complies with the 52-hour workweek and operates a working hours management system to guarantee work and life balance for employees. To vitalize the culture of leaving work on time, we configured employees' computers to be automatically turned off after a certain hour, and a separate approval procedure is needed for extended work. We strive to ensure that employees can use the leave at a period wanted by them, and expand the recommended leave system and sabbatical leave system to guarantee adequate rest for employees.

Family-Friendly Welfare Benefits

GS E&C provides family-friendly welfare benefits so that employees may focus on their work without any worries. When structuring welfare benefits, we also strive to assist with the resolution of social problems such as reduced birth rate, career disruption of women, and more. We reduce working hours during the early stages of parenthood and provide congratulatory subsidies for childbirth, childcare support system, and infertility leave. Furthermore, we support employees' childbirth and childrearing, and employees can use parental leaves twice a year. In particular, we established a culture where male employees are encouraged to use parental leave, so the number of male employees using parental leave increased greatly in comparison with the previous year. In recognition of these efforts, GS E&C received the family-friendly certificate from Korea Management Registrar, and we will continue to introduce programs to remain a family-friendly company in future.

Use of Parental Leave (Unit: Person)



*Modified to account for a change of calculation method in 2019, 2020

Employee Human Rights

Labor-Management Cooperation

GS E&C operates the labor union composed of 457 full-time employees (26.2%). Employees are eligible to maintain labor union membership up to the 6th year in a management position with an age of 45 or less. We negotiate a wage agreement with the labor union every year and a collective agreement regarding the working conditions is formed every other year. If there is a material issue regarding the management of the company, we guarantee employees' right to work by notifying significant management issues and carrying out discussions with employees without delay. In 2021, we held a labor-management discussion, labor management workshop, and regular labor-management meeting, and the collective agreement was implemented to expand employees and executives' rights such as the improvement of the long-term continuous employment award system, etc. GS E&C will vitalize the communication to lead the labor and management win-win culture.

2021 Labor-management Meeting Operation Result

Regular meeting (Each quarter)	4 times
Management of the difficult processing registry	2 times

“VOE” to listen to employees and executives' voices

GS E&C operates “VOE (Voice of Employee)” to listen to employees and executives' voices. When employees share their difficulties and constructive opinions through VOE, we strive to accept and reflect them to improve the company's process. In addition, we make regular visits to domestic and overseas work sites to directly listen to and handle difficulties and thereby improve the employees' work and life conditions.

VOEs Submitted



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SOCIAL

Pursuing Customer Satisfaction through Win-win Management

As win-win management with partners is becoming increasingly significant given the characteristics of the construction industry, GS E&C strives to reduce partners' risks through its partner evaluation system and operates various partner support programs such as joint technology development and co-entry into overseas markets for shared growth. In addition, GS E&C provides experience of a satisfying residence environment through the apartment brand Xi based on quality competitiveness, and achieves customer satisfaction by providing various lifestyles with platforms that enable two-way communication with the customers.

Improvement of Customer Value

Comprehensive satisfaction of the ordering entity

88.4points

Assessment based on the Global Customer Satisfaction Index (GCSI)

No. 1 company for 17 consecutive years

Shared Growth

Shared growth funds

KRW 30 billion

Participants in education for on-site-directors and field workers

236partners

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Pursuing Customer Satisfaction through Win-win Management

Win-win Management

Sustainability Management System

Sustainability Management System for Partners

GS E&C has established a sustainability management system for its partners to realize economic, environmental, and social values together. We implement the partner evaluation each quarter and each year, and we disclose the evaluation results to the partners to secure fairness in the process of partner evaluation and evaluate partners systematically and fairly. In recognition of these efforts, we received the highest grade in agreement performance evaluation by the Fair Trade Commission and the highest grade in the win-win growth index by the Accompanied Growth Committee. GS E&C will continue to expand a systematic and fair partner management system as a basis for management of the supply network, strengthen measures for accompanied growth with partners and accomplish the social responsibility of the company.

Rewarding Outstanding Partners with Incentives

GS E&C provides incentives to outstanding partners and encourages them to voluntarily establish a sustainability management system. Partners are evaluated regarding the overall business activities such as the present condition of management, quality, environment, safety, construction and management, to select an outstanding partner. We provide rewards such as bonus and bidding participation rights, etc. to partner companies that show outstanding performance. GS E&C is striving to manage the economic, environmental, and social risks of partners and expand the sustainability culture through the partner incentives system.

Fair Bidding

GS E&C selects partners based on the basic principle of “fairness,” “objectivity,” and “transparency.” The factors to be considered upon the selection of partners are established, points are granted in accordance with the criteria for each item, and the highest scoring companies are given an opportunity to participate in the bidding process. GS E&C will continuously follow a fair procedure in selecting partners to lead the establishment of a fair competitive environment.

Partner ESG Risk Management

GS E&C takes measures to establish a safe and sustainable supply chain by managing the ESG risks of its partners. While evaluating a company for registration as a partner, we consider the credit rating, financial status, industrial accident ratio, to identify potential risks in the fields of economy / environment / society, and in case the company has high risks, it is not allowed to register as a partner. Partners are monitored and evaluated on a regular basis and disqualified if no improvements are made even after they are warned upon finding that internal requirements are not met.

In 2021, we developed a self-diagnosis evaluation questionnaire for partners to manage the ESG risks of partners, and we implemented a pilot questionnaire for 33 companies to share the ESG concept and to deliver the management policy of GS E&C. Furthermore, we implemented physical inspection on 10 sites. In 2022, we plan to expand the scope of evaluation for subject partners to 100 companies and to carry out ESG training and evaluation based on the physical inspection. In addition, GS E&C enacted the Code of Conduct for partners to provide guidelines for compliance with sustainable management principles and idea in the field of human rights, safety, environment, ethics, etc. We will reduce the ratio of high-risk partners to 0% through continuous and systematic management of our partners.

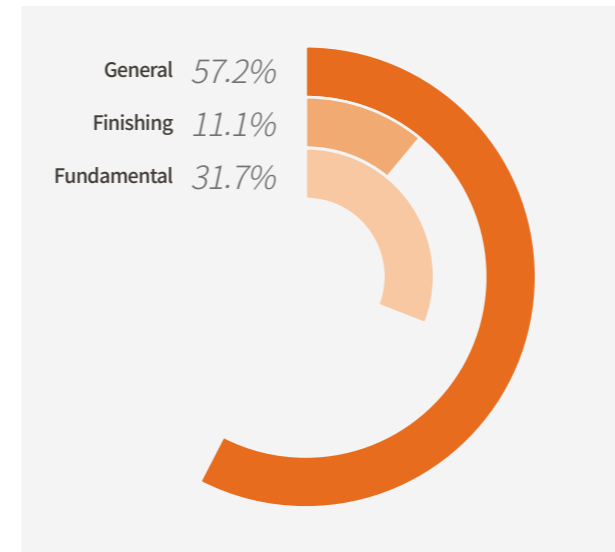
Partner companies with high-risk in 2021 (Unit : Company, %)

Classification	Economic (Including financial affairs)	Environment	Society
Number of companies	7	0	0
Ratio	0.7	0.0	0.0

Registered Partners as of 2021 (Unit : Company)

Classification	2021
Number of registered partners	891

Ratio by Type of work



* **Finishing** : Tiles, Wallpaper, Woodwork (Doors and Windows), Painting, Waterproofing
Fundamental : Civil Engineering and Construction (General), Framework, Steel Frame, Electrical (General, Section), Equipment, Mechanics/Plumbing, Interior Carpenter, Stonemason
General : All else

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Shared Growth with Partners

Shared Growth System

GS E&C has developed the Great Partnership Package for making efforts to adopt fair subcontracting transaction practices between conglomerates and small and medium-sized enterprises (SMEs) and lay the foundation for shared growth. Great Partnership Package is a comprehensive support system for sustainable shared growth with partners, and it contributes to the improvement of partners' financial integrity through various supports, establishes a fair trade order, and strengthens the competitiveness of partners as well as promotes trust through horizontal communication.

Great Partnership Package

Compliance and Fair Trade	Financial and Managerial Support
<ul style="list-style-type: none"> • Use the Standard Contract Form • Implement four major tasks • Compliance monitoring • Practice fair bidding 	<ul style="list-style-type: none"> • Direct/indirect financial support (Management support, Shared Growth Fund) • Improvement of payment terms for sub-contractors • Shared growth programs
Enhancing Competitiveness	Promoting Equal Communication
<ul style="list-style-type: none"> • Joint development of new technologies • Joint entry to overseas markets • Incentivizing outstanding partners • Pre-con activities • Assisting employee education and hiring 	<ul style="list-style-type: none"> • Xi CEO Forum • Xi manager education • Activities promoting communication (Subcon Board and other meetings) • GS Partner and on-line whistleblowing system



Partners that Leap Forward as a Global E&C Company

GS E&C pioneers overseas markets together with its partners by entering overseas markets and winning overseas projects. To make these goals possible, we hold a briefing session about joint entry into overseas markets, operate an integrated overseas country information system, provide overseas country information to partners, and implement a pre-bid system to participate in bidding in overseas contracts jointly with partners.

Advance Payment of Occupational Safety Health Administration Costs Incurred by Partners

GS E&C makes an advance payment of 100% of occupational safety and health administration costs and thereby establishes a voluntary safety management investment environment for partners for encouraging partners to reinforce safety management. The subjects of advance payment include a total of 10 partners in charge of 7 high-risk areas related to construction and materials. After enforcement of the system in Sept. 2021, we completed the advance payment of safety and health administration costs to subject partners. The advance payment of safety and health administration costs not only helps to mitigate partners' financial burden, but also plays a part in the establishment of a safe environment as an exemplary case of win-win management.

Support with the Appointment of Safety Manager for Partners

GS E&C operates the safety manager system to support the assignment of safety managers in seven high-risk work areas. The safety manager system is utilized to support the labor cost when partners deploy a safety manager with at least 1 year of experience to enhance supervision of on-site safety.

Financial Support System for Partner's Liquidity

GS E&C operates various financial support systems to support partners in strengthening the stability of management as well as managing funds properly. We provide direct funds support for our partners in improving their cash flow in times of difficulties through the management support fund system. We establish and operate the Shared Growth Funds, which allows partners to borrow funds at low interest rates from the bank, and also, we operate a network loan system that allows partners to receive a lower loan interest rate upon their advancement to overseas markets.

Major Financial Support in 2021 (Unit: KRW 100 million)

Category	Support Amount
Management support fund (Based on average annual balance)	390
Shared Growth Deposit	300

Improvement of Payment Terms in 2021

Category	Payment criteria
Ratio of cash payment	95.2%
Ratio of cash equivalent payment	100%
Payment due date	On the 10th of the following month after closing

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Partner Construction Support System

GS E&C is strengthening its cooperative relationships with partners by operating a variety of systems to support the partners' construction projects. We promote PCM (Pre-Construction Meeting) activities continuously by each stage to ensure that the construction process is implemented systematically, assist partners with the construction projects through TPMS¹⁾ meetings, inspect safety in the field, and provide technical support. To alleviate the burden caused by the lack of equipment, we support our partners with construction equipment such as tower cranes and hoists in each field. In addition, we share the difficulties through adjustments in the supply cost for partners that suffer from the recent increase in raw material costs.

1) Total Project Management System: Total project management system

Developing Partners' Workforce Capabilities based on Educational Support in Various Fields

GS E&C offers workforce education and training to support its partners' sustainability management system. Xi Management Training is provided to the partner CEOs to share the trends of the construction market, and we provide support with various programs to improve their management capabilities. We implement job training and safety education for site directors and field workers through the Safety Innovation School, ESG education, etc. to help our partners with the development of employee capabilities.

Educational Support for Partners in 2021

Category	Performance
Xi Management Training	42 partners
Safety Innovation School	275 partners
Training for site directors and field workers	236 partners

Practice of Fair Bidding

GS E&C practices a fair bidding system to enhance safety management through the restriction of bidding at low prices. A fair bidding system provides the proper level of construction expense to partners for enhancing safety, construction capabilities, and quality control, and we plan to operate the system continuously.

Improving Partner's Technological Prowess through Technical Support

GS E&C supports partners with technology development using various methods to help them achieve sustainable growth based on their technological prowess. We support the royalty on technologies that are being jointly developed, and when the patent is registered jointly, we support the costs for registration of patent. Furthermore, by adopting patents and new technologies of partner companies, we are striving to promote the technology of partner companies and to commercialize the technology.

Major Technical Support to Partners in 2021

(Unit: Times, KRW million)

Category	Support provided	Amount
Performance sharing system	26	649
Royalty for joint development of new technology	12	335
Joint development of new technologies	4	261
Joint patent registration	5	3

Communication & Consultation Channel

GS E&C makes efforts for shared growth through continuous communication with partners based on the operation of various communication and consultation channels. The Xi CEO Forum for executives and partner CEOs is held on a regular basis, and partner's difficulties and suggestions are collected through the "Subcon Board" to reflect them in our shared growth programs. The online communication and consultation channel is in operation, and it is possible to make various suggestions at "GS Partner" and Cyber Simungo.

Performance of Active Communication with Partners in 2021

(Unit: Times)

Category	Performance
Rewarding partners and meeting with CEOs	42
Number of briefing sessions/meetings on the outsourcing system	3

2022 Results for First Half Employee Opinion Listening Inspection

(Unit: Times)

Category	Opinion cases	Improvements/measures	Measure ratio
Architecture/housing	292	241	82.5%
Infrastructure	66	61	92.4%
Plant	27	27	100%
ECO	6	5	83.3%
Total	391	334	85.4%

* 334 improvement/measure cases among 391 cases of opinion presented by partners' employees Completion of approx. 85.4%

* Of the remaining 57 cases (14.6%) are irrelevant since they are related to accident preventive measures.



Subcon Board in 2021

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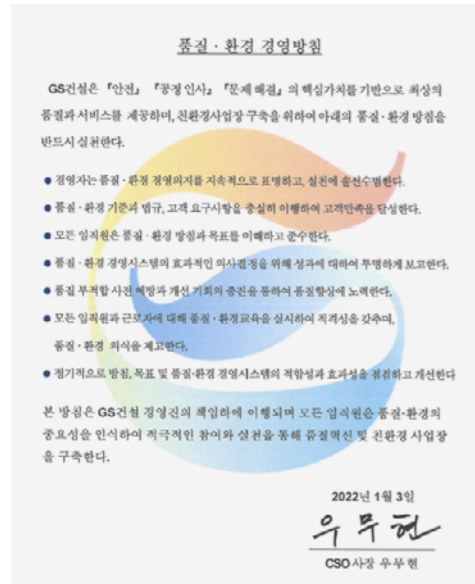
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Increasing Customer Value Systematic Quality Management

Quality Management and Consumer Safety

With the management concept of “think and act from the position of the customer, and always be close”, GS E&C strives relentlessly to provide the best quality and service that satisfy the customer. We execute preliminary quality verification on key materials that serve as a foundation for all construction work, and the improvement work is carried out and quality verification implemented to secure the reliability of material quality. We strictly abide by the quality standards for finishing materials including indoor air quality, noise level control, and insulating materials, and we strive to improve customers’ satisfaction to achieve higher levels. For the accurate verification of material quality, we perform the quality inspection by making business agreements with various specialized quality testing and inspection agencies.

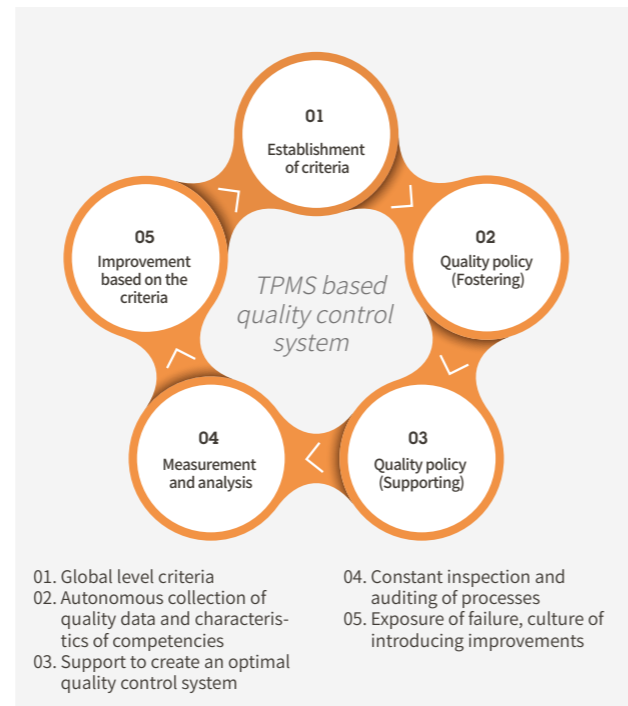


Quality/Environment Management Policy

Quality Management System

Based on the integrated management system approved by the international specification, ISO 9001, GS E&C develops and uses the best quality management tools applying its outstanding IT system. We apply stringent quality management to all projects to meet not only customer requirements, but also the internal quality criteria corresponding to global standards. We are also pursuing the settlement of a quality culture through the improvement activity in addition to preventing failures.

TPMS-based Quality Management System



Preliminary Quality Inspection

	Commencement of construction	D-90	D-45	Completion of construction (D-day)
QC	Quality inspection during each stage of construction			
BS	On-site education and inspection based on failure cases			
PQC		On-site deployment of quality control activity from the customers' perspective		

GS E&C strives to complete the highest quality buildings through various preliminary quality inspection activities. We check the status at each stage based on the manual upon the progress, and strive to realize the perfect construction in all processes by means of total quality inspection. We check the preliminary quality through QC (building quality control) to inspect the quality during each stage of construction in all processes and BS (preliminary quality control) to implement on-site training and inspection. In particular, the visual inspection and functional inspection on finishing material are conducted simultaneously in BS to prevent multiple defects.

We perform the quality inspection through PQC (Preliminary Quality Control) 90 days prior to the completion of construction. We perform total quantity inspection on exclusive areas through the quality control activity and also conduct a joint site inspection on the common areas to check the quality status of finishing for common subsidiary work and matters related to expected complaints. To minimize customer inconvenience, the complaints and defects reported on exclusive areas and common areas during the tour are handled thoroughly through PQC. When construction is completed, we prevent inconvenience to residents through prompt hand-over, and we also visit each household right after moving-in to conduct inspections, thereby increasing customer satisfaction.

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Pursuing Customer Satisfaction through Win-win Management

Cooperation with the Technology Research Institute for Insulation Design

GS E&C requests support and pursues collaboration with the technology institute when technical review is determined to be necessary during the design stage, to review matters such as dew condensation prevention or verification of insulation materials. If there is a concern about condensation, we conduct a simulation for thermal performance analysis to verify whether the condensation requirements are met. The institute provides supports to verify the performance of new insulators upon its introduction, to ensure optimal insulation design.

Reducing Noise between Floors and TF Activities

As noise between floors is recognized as a serious social issue, the verification of noise between floors has been strengthened. To respond to the policy of conducting noise measurement after construction, GS E&C established a Task Force (TF) related to controlling noise between floors. The task force measures the noise between floors on 4 floor structures at 3 construction sites to select 2 outstanding structures in terms of quality, and promotes the acquisition of related recognition from LH(Korea Land & Housing Corporation). Various structures for noise reduction between floors derived from the 2 structures selected by TF are introduced at Incheon Yonghyun Xi Crest, and we expect that GS E&C's efforts to reduce noise between floors will yield exceptional results.

Use of Safe Stone Material

As radon has become a major social issue in Korea, GS E&C conducts tests in accordance with the relevant laws and regulations to secure material quality and ensure customer trust. We measure the radiation index for granite and marble material, and we have strictly forbidden the use of stones that fail to comply with the standards. A granite bathroom shelf is replaced with engineered stone to ensure customer trust. Upon the introduction of new stone material, we request an accredited testing laboratory to run tests, and only the qualified materials with related standards are used.

Customer and Market Communication

Creative Customer Communication using Social Media

GS E&C continuously communicates with customers by making active use of social media. We are uploading a variety of contents tailored to customer needs via various social media channels including YouTube, KakaoTalk, Facebook, Instagram, etc. The official YouTube channel of GS E&C, "Xi TV" has approximately 450 videos on various subjects of interest to customers such as real estate hot issues, live sales talk, tax and interiors. It provides differentiated contents ranging from lectures like real estate seminars to talk shows such as "Real estate What Chat" to enhance communication with the customer and the channel has more than 500 thousand subscribers as of May, 2022. Moreover, due to restrictions in making in-person visits considering the spread of COVID-19, the channel broadcast show has been housing live conversations for the first time in the industry. As such, we plan to continue communicating with our customers in various creative ways.



Family Bathroom in Opo Xi The Aube

Customer Satisfaction Management

Customer Service through Efficient Management of Complaints

GS E&C provides that allow customers to easily inquire about sales, design, construction and as by accessing Xi website or GS E&C official website in order to collect and handle customer inconvenience efficiently. When an inquiry is received, the submitted opinions and complaints are collected and sorted efficiently based on each subject through the Housing Customer Relationship Management (CRM) System. Feedback and queries are delivered to in-house experts for review, to process the response as soon as possible. We strive to prevent inconvenience to customers preemptively by identifying the appropriate improvement after collecting frequent complaints on a regular basis.

When prospective residents visit their houses for inspection, they can submit complaints on defects and request repairs through the Xi My House Visit App. We show in real time, through the application, how defects are handled before the completion of construction. We check customer satisfaction with our after-sales service through the Mobile Happy Call after defects are handled and residents move in. If some customers are not satisfied with our service, we try to improve our service further. We will proactively manage and respond to customer complaints so as to enhance customer trust and the efficiency of work.



Bathroom Shelf Constructed with Engineered Stone

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Pursuing Customer Satisfaction through Win-win Management

Advancing Customer Services using the Xi AI Platform

GS E&C has built an AI platform for the improvement of customers' satisfaction with the residences to introduce the home network system and community facilities. The Xi AI platform provides integrated services based on big data. It analyzes data collected from Xi complexes and uses the analysis to provide various services to residents. In the first half of 2022, we launched "Safe Care Service", which analyzes the living pattern of residents through AI and sends guidance messages to a guardian upon the occurrence of an emergency situation, and in the second half, we plan to expand the Xi AI platform even further to provide the "customized indoor environment" service to maintain a pleasant indoor environment automatically through analysis of indoor air quality and "parking location guidance" service to guide the optimum parking location based on the parking location preferred by residents. In addition, we are expanding the range of available services for residents in cooperation with various communication companies (SKT/KT) and IoT manufacturers (LG, Coway, etc.), and we provide security at the level of financial institutions by applying PKI based authentication system on each device and encryption on all communications and databases.

'Xian Vie'	An App used prior to move in, providing services for reservation of community facilities and concierge services
'Space'	An exclusive App for residents that can control IoT devices, air-conditioning, and ventilation remotely



"GS Space", an Exclusive App for Xi Residents



Community Facility Brand "Xian Vie"

Ranked No. 1 in the Global Customer Satisfaction Index (GCSI) for 17 Consecutive Years

"Xi", the apartment brand of GS E&C, recorded a score of 73.7 points in 2021, achieving No. 1 position in the 2021 GCSI (Global Customer Satisfaction Competency Index) score for 17 years in a row. Global Customer Satisfaction Index (GCSI) is an index used to assess the customer satisfaction. It is supervised by Global Management Association, a research institution under the Ministry of Trade, Industry and Energy. GS E&C scored the highest score in all 4 areas (customer satisfaction, customer value, global competitiveness, customer royalty) as well as the total score, and we will put more efforts toward the improvement of customer satisfaction.

Customer Satisfaction Survey (Unit: points)

Customer satisfaction level	Year	Score
Customer satisfaction level	2019	73.6
	2020	73.7
	2021	73.7

* Source: GCSI (Global Customer Satisfaction Competency Index) customer satisfaction level result

Satisfaction Telephone Survey for Residents

GS E&C implements the telephone-based satisfaction surveys each year for residents who have been living in their new apartment houses for over six months, and uses various channels for the improvement of customer satisfaction. The satisfaction survey presents questions under 4 categories such as reception of A/S, scheduling, A/S processing period, and A/S processing results. The overall score increased in comparison with the previous year, and the results regarding A/S processing and scheduling have a relatively high score, but A/S reception and A/S processing period have relatively low scores. For the improvement of satisfaction on A/S reception and A/S processing period, we are recruiting personnel in charge, carrying out related training, and enhancing communication with the customers regarding the progress of A/S processing.

Monitoring of Corporate Client Satisfaction

GS E&C identifies strengths/weakness through the collection of customers' opinions, and conducts a satisfaction survey each year to establish measures for improvement. As a result of the survey on customer satisfaction for customers at project sites with 12 items in three areas: project management, project workforce, and communication, the total satisfaction score was 88.4 points, an increase in comparison with the previous year. The area with the highest positive opinion is the project workforce, which has extensive performance experience with outstanding capability. The area with significant negative opinion is project management, owing to insufficient response on unexpected situations, so we plan to implement training related to the project management. We will strive to achieve continuous growth as company by analyzing customer feedback and putting forth improvement efforts in all sectors.

Corporate Client Satisfaction Survey (Unit: Points, 100-Point scale)

Category	2019	2020	2021
Project management	85.1	87.4	88.5
Project workforce	89.4	86.9	88.2
Communication	87.6	88.5	88.4
Total satisfaction	87.3	87.4	88.4

* Survey targets: Corporate clients that ordered domestic and overseas projects implemented in the reporting period (43 in 2019, 49 in 2020, and 49 in 2021)

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Contribution to Social Development through Strategic Social Contribution

As the company grows and its impact on society increases, corporate's social expectation, demands regarding companies, and its social responsibility are being emphasized. GS E&C establishes community communication and consultation channels such as meetings with residents and reflects community opinions. We also contribute to local communities through social contribution activities based on our business characteristics.

Strategic Social Contribution Management

Beneficiaries of the social welfare program

5,784 persons

Beneficiaries of education/cultural program

17,891 persons

Social Contribution Based on Industry Expertise

Investment in social contribution

KRW 5.91 million

Employees' participation in social contribution activities

614 hours



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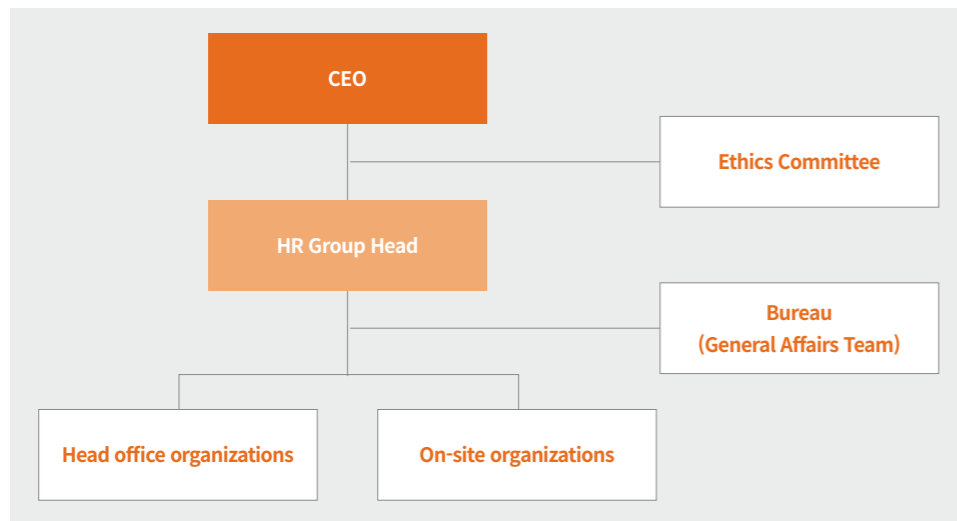
Contribution to Social Development through Strategic Social Contribution

Contribution to the Development of Local Communities

Strategic Social Contribution Management System

GS E&C aims to pursue the development of local communities in the true sense of the word rather than making one-time donations. We pursue social contribution activities that reflect the characteristics of the construction industry under the core values of “respect, communicate, and grow together”, and we promote overseas social contribution activities to build trust with local communities. We have been implementing social contribution activities continuously for people in need, starting with the establishment of the ‘Xi Share Love Volunteer Group’ in 2006 based on the employees and executives’ volunteer activity organization.

Social Contribution Promotion Organization

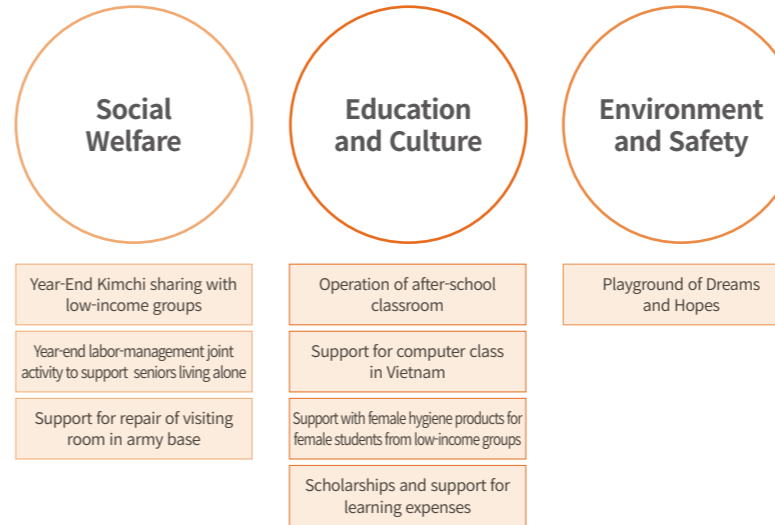


In 2021, 4 locations of ‘Playground of Dreams’, a representative social contribution program, were completed (No. 38 in accumulation). Given the difficulty in carrying out face-to-face volunteer activity under the influence of COVID-19, we support neighbors experiencing difficulties by expanding donations and investment. In 2022, we plan to encourage employees and executives’ participation in social contribution activities through “With COVID-19 Era” and expand donations and investment.

Core Values

Respect, Communicate, and Grow Together!

Activities



Major KPI Performance Data for Social Contribution Activities

Social Welfare	Education and Culture	Environment and Safety
<ul style="list-style-type: none"> Beneficiaries of social welfare program: 5,784 Sharing 3,000 boxes of Kimchi (10kg/box) Support for 130 seniors living alone Number of press exposures: 221 times 	<ul style="list-style-type: none"> Beneficiaries of education/cultural program: 17,891 After-school Classroom: No. 22 (accumulated) Support with female hygiene products for female students from low-income groups: 1,500 persons Number of scholarships & learning expenses provided: 13 times 	<ul style="list-style-type: none"> Completion of the 38th Playground of Dreams and Hopes

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Social Contribution Based on Industry Expertise

Protecting Children's Safety

GS E&C is carrying out the "Playground of Dreams and Hopes" project to provide a safe educational environment for children. As a new play culture space based on a new concept, Playground of Dreams and Hopes includes an ecological playground, a cafe, and an auditorium, breaking away from the conventional playground. It supports children to grow physically and emotionally healthy by installing a playground that ensures a safe space for children. Four playgrounds were installed in 2021, summing up to a total of 38 playgrounds till date. We plan to deploy a support system for Playground of Dreams and Hopes continuously in the future.



Picture of Playground of Dreams and Hopes (Establishment of an ecological space and rest area)

After-school Classroom Project

GS E&C is implementing the "After-school Classroom" project that improves the learning facility and environment for the low-income groups and provides various materials. In 2021, we repaired 2 welfare facilities and provided support with the necessary items and consumables to "After-school Classroom", and completed the 22nd(cumulative) classroom. GS E&C plans to promote the project for the improvement of education environment continuously through the "After-school Classroom" that offers a pleasant and safe environment.

Soft and Warm Hope Box for Girls from Families in Crisis

GS E&C is promoting the "Soft and Warm Hope Box" project, and it is designed as an initiative to hand out female hygiene products such as sanitary pads for female students who are experiencing financial difficulties. In 2021, we provided female hygiene products and other items that can be used for one year to 1,500 female students from families, experiencing a hard time. We pay attention to even little details so that "Soft and Warm Hope Box" is delivered to the student's home rather than to schools to prevent any emotional damages to female students with sensitive emotions. We expect that the "Soft and Warm Hope Box" project facilitates healthy growth and improve balanced welfare for female students, and we will continue to take the lead to resolve the blind spots of welfare in the future.



Picture of "Soft and Warm Hope Box"

Support for Seniors Living Alone

GS E&C holds regular events to deliver presents and foods to seniors living alone. We deliver the present and foods to seniors living alone for 4 times a year including Chinese New Year, Family Month, Chuseok, and year-end. In 2021, we delivered food and agricultural product packages to 130 seniors living alone. GS E&C plans to expand supports for seniors living alone with a feeling of respect.

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Kimchi Sharing with Low-income Families

Since 2009, GS E&C has been sharing Kimchi with low-income families and welfare facilities. In 2010, the scope of participants in GS E&C's kimchi sharing event, which has the employees make and deliver kimchi in person, was expanded to include the employees' families, adding values to the event. In 2021, we purchased Kimchi to share with a larger number of low-income families and welfare facilities who suffered from COVID-19. In 2022, employees plan to prepare and deliver Kimchi in person, and we hope to enhance the bonding among employees through Kimchi, and encourage the participation of employees in social contribution activities.



Sharing Kimchi of love

Military Supports to Create Synergy Effects

GS E&C strives to strengthen bonds between the company and military camps and create synergy for the economy and national security. With the conclusion of the One Company, One Military agreement with the 1st Artillery Brigade of the Republic of Korea Army in Goyang-si, Gyeonggi-do in 2018 we provided support for the establishment of a sport facility (badminton court) in 2020 and contributed to improving physical strength and welfare of service members. In 2021, we supported the repair work of the visitors' room at each base within the 1st Artillery Brigade of the Republic of Korea Army. GS E&C will review prospects for additional support to army bases, and set a new model of civil-military cooperation and lead the creation of synergy between "national security" and "economy".

Organizations and NGOs Cooperating on Key Social Contribution Activities

Cooperating organization	Social contribution activities
Child Fund Korea	Study Room of Dreams and Hopes, Playground of Dreams and Hopes, Afterschool Classroom, Year-end Kimchi Support
Save the Children Korea	Scholarships and support for learning expenses for outstanding students Support for low-income families led by grandparents
Happy People	Facility support for schools in Vietnam
Good Neighbors	Support with female hygiene products for low-income groups
Seoul Sports Council	Support for athletics
International Disabled Cultural Exchange Association	Art exhibition by developmentally disabled persons

Employees' Participation in Social Contribution

(Unit: Times, Hours, No. of persons)

Category	2019	2020	2021
No. of activities	56	20	33
Hours of participation	2,957	468	614
No. of participants	621	117	95

Social Contributions and Expenses

(Unit: KRW 100 million)

Category	2019	2020	2021
Donation	52.4	58.0	56.1
Social contribution expenses	55.5	62.3	59.1

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Contribution to Social Development through Strategic Social Contribution

Contribution to Local Communities Development

Coexistence with Local Communities

“Meeting with Local Residents” to Collect the Opinion

GS E&C is operating community consultation channels such as meetings with residents to listen to the residents’ opinion and to enhance communication. We hold meetings with local residents to explain the progress of construction, and to request their understanding on any inconvenience that may be caused during the construction process. When there is a request for improvement and demands from residents during the construction process, we strive to conduct an interview with the person in charge of on-site work to reflect the opinion as much as possible and take countermeasures. We accepted the residents’ opinion that was raised in a meeting with local residents of Yangjung District 1, Housing Redevelopment Improvement Project that there is a concern for the safety of students, and we deployed traffic safety staffs at 3 construction sites for the safety of students. In addition, we install soundproof walls, take measures to reduce dust, and protect pedestrians at construction sites in order to minimize the construction impact on local communities, and also are making efforts to make our construction sites safer for residents based on proper communication with residents.



Picture of Meeting with Residents

Encouraging Social Contribution Activities of Employees

Support with COVID-19 Emergency Relief Items at Nhabe, Vietnam

As a global constructor, GS E&C promotes social contribution in line with the demands and expectations of local communities in overseas sites. In 2019, we received the local community’s needs to proceed social contribution activities, and in 2020, 60 employees of GS E&C participated in the construction of 3 computer classrooms at a school near Nhabe site in Ho Chi Minh, Vietnam. In 2021, we provided support with emergency relief items to respond to the COVID-19 crisis and carried out a project to improve the family environment for 4 families with 30 computers. GS E&C will fulfill our responsibility as a global constructor by leading social contribution activities at overseas sites as well as domestic sites.



Support in Nhabe, Vietnam

Employee Donation System

GS E&C operates an employee donation system to encourage employees’ participation in social contribution activities. The fundamental donation is raised with a certain amount of salary and we use it as a financial source for social contribution activities. GS E&C provides a grant matching the donation by employees to increase the donation amount.

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Culture of Sharing and Companionship, Sport Support Project

Operation of Gallery “Siseon”

Since November 2018, GS E&C has been operating Gallery Siseon on the first floor lobby of the Head Office to conduct social contribution activities by supporting new artists. Artists who are to exhibit their work in Gallery “Siseon” are selected fairly by consultants with expertise. Consultants bring out the potential of artists, and provide various advices for holding the exhibition. In 2021, we published a review book including a consultant’s assessment of artists and their works along with works of 84 new artists, who exhibited the work in Gallery “Siseon”.



Review Book of Gallery “Siseon”

Art Exhibition by Developmentally Disabled Persons

GS E&C entered an agreement with the International Disabled Cultural Exchange Association to host an art exhibition by developmentally disabled persons for 10 days from Dec. 23, 2021. At the art exhibition by developmentally disabled persons, held in the lobby gallery of GS E&C’s head office, 26 pieces of a total of 10 developmentally disabled artists were exhibited. In addition, we delivered support items (art supplies) to support art activities of developmentally disabled artists.



Picture of Art Exhibition by Developmentally Disabled Artists

Sports Support by Business Team and Students in Jongno-gu

GS E&C entered an agreement with Seoul Sports Council to select a support team comprised of members of the business team and students in Jongno-gu and delivered sports supplies and aids. We commenced the support by selecting a women’s weightlifting team, athletic club of Kyungbock High School, and Judo club of Gyeongsin High School in Jongno-gu, where the head office of GS E&C is located. In order to facilitate continuous support, GS E&C provided the same support for 2 consecutive years, and we plan to review is the requirement for another team in Seoul for supports, and to expand the support.



Seoul Sports Council / GS E&C Business Agreement Event

Music Concert ‘Stay’

In the last week of June 2021, GS E&C held a music concert titled ‘Stay’ on the first floor and first basement level of the head office. Through the Music Concert ‘Stay’ we provided performance opportunities for musicians who do not have many opportunities to work due to the COVID-19 pandemic. In addition, we provided a precious opportunity for our employees and visitors to relax and enjoy the music.



Music Concert ‘Stay’

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Establishment of Transparent Governance

GS E&C strives to understand and incorporate the changes in the global management paradigm to take bold strides forward as a global top tier construction company. Stakeholder capitalism is an emerging agenda of capitalism that aims for the long-term improvement of corporate value, and it requires transparent communication with many stakeholders including investors. Thus, GS E&C strives to establish transparent governance based on the BOD with experience and competency, in order to share the vision of management with the BOD and to disclose the accomplishments to all stakeholders. GS E&C will disclose the governance information through various channels such as the ESG Report, company official website business report, etc. to communicate with stakeholders.

Governance

Korea Corporate Governance Service(KCGS) Evaluation of 2021 - Governance Section

No. of sustainability-related agenda items in 2021

Grade *A*

12 cases



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Governance

Governance Structure

The management operates the BOD to accomplish the goals of corporate growth through the creation of sustainable value with stakeholders under GS E&C's mission of "pursuing growth as a Sustainable Global Company." We manage issues related to overall economy / environment / society through subcommittees under the BOD to improve the expertise and efficiency of the BOD.

GS E&C has adopted measures to improve the independence, expertise, and diversity of BOD through the new establishment of the ESG Committee and promotion as a committee within the BOD, appointment of a female outside director, appointment of an independent director with industrial experience, enactment of the director appointment policy, etc. in accordance with the expansion of recognition that transparent and sound governance structure is the source of corporate competitiveness.

Establish BOD-centric ESG Governance

Composition of the BOD

The BOD of GS E&C consists of seven members including two inside directors, four outside directors, and one non-executive director as of May 2022. The representative director holds the position of chairman of the BOD to enable timely decision making. However, the roles of the BOD chairman and the CEO are separated to secure the independence of the BOD. To ensure the independence of the BOD, the ratio of outside directors is maintained at more than a half (4 out of 7), which satisfies paragraph 1, Article 542-8 of the Commercial Act which requires three outside directors and occupy the majority of the total number of directors.

BOD Members

(As of the end of May, 2021)

Category	Name	Gender	Expertise	Term of office	Major career titles
Chairman of GS E&C Inside director	Chang-soo Huh	Male	Corporate management	2002-03~2023-03	[Current] Chairman of GS E&C [Current] President of the Federation of Korean Industries
Inside director	Byeong-yong Lim	Male	Corporate management	2013-03~2025-03	[Current] Vice Chairman and CEO of GS E&C [Former] Representative director of GS Sports
Non-executive Director	Jin-soo Huh	Male	Corporate management	2020-03~2023-03	[Former] Chairman of the BOD of GS Energy [Former] Representative director of GS Caltex
Outside director	Hee-gook Lee	Male	Corporate management	2021-03~2024-03	[Former] Chairman of LG technology association [Former] Representative director of LG Electronics
	Hee-jin Cho	Female	Law	2021-03~2024-03	[Former] Chief prosecutor, Seoul Eastern District Prosecutor's Office [Current] Representative lawyer of the Law Firm Dambak
	Ho-young Lee	Male	Finance/ accounting	2022-03~2025-03	[Current] Professor in Management Department, Yonsei University [Current] Director of the Center for Global ESG & Business Ethics
	Ho-in Gang	Male	Construction industry	2022-03~2025-03	[Former] Minister of Land, Infrastructure and Transport [Current] Co-representative of Citizens' Coalition for safety

* Average BOD tenure: 5.29 years

Independence of the BOD

To ensure the independence of the BOD, candidates are selected by the BOD and the Outside Director Candidate Recommendation Committee and confirmed as an agenda for the general shareholders' meeting. Information such as the final candidate's main background and relationship with the largest shareholder is provided in advance, for the fairness of the outside director appointment process. Individuals appointed as outside directors are not allowed to hold more than two outside director's positions so that they can concentrate on their work. To hold an additional position, they are required to receive approval from the BOD in advance.

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Establishment of Transparent Governance

BOD Operation

GS E&C holds regular board meetings seven times a year to decide on matters stipulated by laws and articles of incorporation such as the quarterly approval of financial statements, and approve on important matters related to business execution, and temporary meetings are held whenever there is an agenda to be resolved. The resolution of the BOD is made with majority of the directors attending and the consent of a majority of directors present.

In 2021, the BOD meetings were held for eight times to present matters related to sustainability (12 cases) such as approval of internal transactions among subsidiaries, selection and approval of an electronic voting system in the general meeting of shareholders, appointment and approval of members of the outside candidate recommendation committee, report of ESG activity status and promotion tasks, etc. GS E&C plans and announces the annual schedule of the BOD at the end of the previous year to increase the rate of board members' attendance. The meeting convocation and issues on the agenda are notified and shared at least one week prior to the BOD and committee, to give members enough time to review the agenda.

BOD Operation and Performance

(Unit: meetings, cases, %)

Category	2019	2020	2021
BOD meetings	9	9	8
Agendas deliberated by the BOD	19	15	22
Average attendance rate	92	97	98

2021 BOD Agenda related to Sustainability

Date and time	Agenda
2021.02.04	Approval of large-scale internal transactions with affiliates based on the Fair Trade Act
	Approval of the adaptation of an electronic voting system in the general meeting of shareholders
2021.02.25	Approval of the 2021 plan regarding safety and health
2021.03.26	Approval of the appointment of members of the outside director candidate recommendation committee
	Approval of the appointment of an internal transaction member
2021.04.15	Approval of the amendment of the BOD Operating Principles
	Approval of the establishment of the ESG Committee
2021.05.20	Approval of the introduction of CP and the appointment of autonomous compliance manager
	Report of ESG activity status and promotion tasks
2021.12.01	Approval of human resource affairs of executive officers
	Report of ESG activity accomplishments in 2021 and ESG activity plan for 2022
	CP(Compliance Program) operation performance report

Subcommittees within the BOD

Subcommittees are operated with outside directors occupying the majority seats to strengthen independence. The ESG Committee is composed of 5 directors including all outside directors, and the Audit Committee is only composed of outside directors. The Outside Director Candidate Recommendation Committee consists of a majority of outside directors. Each subcommittee's organization, operation and authority are stipulated in accordance with the committee regulations established by the BOD and the Audit Committee resolution.

Subcommittees

(As of May 2022)

Category	Committee	Function	Composition	Inside director	Outside director	Non-executive Director
Subcommittees under the BOD	Audit committee	Supervises and supports accounting and major business affairs	3 members	-	Ho-young Lee (committee president), Hee-gook Lee, Hee-jin Cho	-
	Outside Director Candidate Recommendation Committee	Recommends outside director candidates at the general shareholders' meeting	All outside directors	Chang-soo Huh (Committee president)	Hee-jin Cho, Ho-in Gang	-
	ESG Committee	Establishes and decides the ESG management direction	2 outside directors out of 3 members	-	Hee-gook Lee (committee president), Hee-jin Cho, Ho-young Lee, Ho-in Gang	Jin-soo Huh
Subcommittees outside of the BOD	Committee on Internal Transactions	Reviews and screens internal transactions and recommends corrective measures	4 outside directors out of 5 members	Byeong-yong Lim (Committee president)	Hee-gook Lee, Ho-in Gang	-

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Establishment of Transparent Governance

Diversity and Expertise of the BOD

GS E&C appoints outside directors with expertise in various fields for strengthening of diversity and expertise of the BOD, and stipulates to appoint a person with expertise in management, economy, law, construction industry, related technology, etc. upon the appointment of outside director in line with the "Outside Director Independence and Diversity Policy" enacted on May 17, 2022 as well as Articles of Association and the Corporate Governance Structure Charter. We consider diversity elements including age, gender, experience, background, etc. to include various perspectives in the BOD operations upon the appointment of directors and prevent unequal distribution toward specific backgrounds and occupation groups. Accordingly, GS E&C's BOD is comprised of experts in various fields (architecture, technology, law, accounting, management, etc.), and in the general meeting of shareholders held in March 2022, Ho-In Gang, a public sector and construction industry expert, and Ho-Young Lee, an ESG and finance/accounting expert were appointed as external directors. In addition, GS E&C appointed Hee-Jin Cho, a chief prosecutor of Seoul Eastern District Prosecutor's Office, as the first female director of GS E&C at the 2021 general meeting of shareholders to increase the diversity of the BOD and to respond to the legal risks in various business sectors. In addition, educational training programs are carried out to enhance the expertise of the BOD continuously, and in 2021, we provided a total of 21 internal and external education courses on topics such as the internal financial reporting system, comprehensive audit plant sharing, etc.

BOD Performance Evaluation and Remuneration

In accordance with Article 22 of the BOD Operating Principles, GS E&C conducts self-evaluation of the BOD and its committees every year in order to ensure more active and efficient operations. The evaluation is conducted on four areas consisting of the role of the BOD, responsibilities and obligations, composition of the BOD, and independence. The remuneration limit for the BOD is determined by a resolution of the general shareholders' meeting every year in accordance with Article 388 of the Commercial Act and Articles of Association of GS E&C, and the remuneration is paid fairly and transparently in accordance with the payment regulation after a resolution of the general shareholders' meeting. The remuneration status of all directors and auditors and of the executives who receive more than KRW 500 million are disclosed in the business report. In 2021, the CEO received a remuneration that is about 28.9 times of the average annual salary of employees, and the difference in remuneration between the CEO and employees is reported transparently.

BOD Self-evaluation Results

(Unit: Points, 5-Point scale)

Category	2019	2020	2021
Self-evaluation score	4.7	4.8	4.8

Highlight. Efforts to mitigate non-financial risks through promoting the ESG committee as a subcommittee under the BOD

At the 2022 general shareholders' meeting, GS E&C promoted ESG committee as a committee under the BOD to enhance the status of ESG management. The ESG Committee is composed of five directors including four outside directors, and guarantees the independence of committee through the performance of committee president by outside director. ESG Committee is a core of BOD centered ESG risk management system, and reviews the annual ESG activity accomplishments. In particular, it performs a deliberation role on ESG promotion plan, environment and regulation plan, plan for ESG assessment response, etc., and it performs a role of a key control tower, which identifies and discusses various company issues, such as environmental, social, and governance, and establishes sustainability management strategies and directions.

2021 ESG Committee Major Review Agenda

- Expansion of the environmental investment plan and its performance
- Identification and development of eco-friendly technology related to the construction industry
- Promotion of consulting on GHG reduction strategy
- Strengthening of serious accident prevention competencies
- Plan for acquisition of information protection certificate (ISMS-P)
- Establishment of partners' ESG risk assessment index



BOD

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Establishment of Transparent Governance

Maintaining “Excellent” Evaluation for Governance

Since 2011, GS E&C has been receiving ESG evaluations by the Korea Corporate Governance Service (KCGS). The ESG index evaluates the non-financial performance of a company in terms of environmental and social performance as well as governance, which helps in identifying the company’s sustainability management level. From 2019 to 2021, GS E&C has received grade “A” in Governance, maintaining excellent ESG evaluation results.

ESG Evaluation Results

(Unit: rating)

Category	2019	2020	2021
Comprehensive	A	A	A
Governance	A	A	A
Social	A	B+	A+
Environmental	B+	A	A

Evaluation Agency: Korea Corporate Governance Service

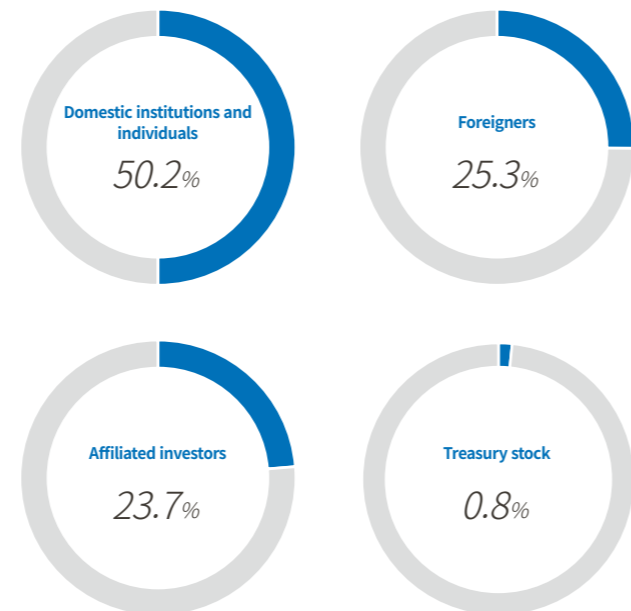
Shareholder-friendly Management

GS E&C’s Shareholders

The total number of shares issued by GS E&C as of December 2021 stands at 85,581,490 common shares; 84,888,895 of them come with voting rights (692,595 treasury shares excluded). All of the shares issued by GS E&C are common shares, and we have introduced the single voting right system to apply the principle of one voting right per share. The current status is specifically disclosed in the Business Report.

Shareholding Ratio

As of Dec. 2021



Shareholders Return Policy

GS E&C determines the scale of dividends considering future strategic investment, management performance, investment plan, cash flow status, etc., and has maintained an average of 25% for the past 3 years. A total of KRW110.3 billion were paid as dividends in 2021, which is an increase of 15% in comparison with the previous year, and dividends on share has increased continuously. We will maximize the shareholder value through the determination of dividends level considering the elements of changes in the business environment, financial resources for future investment, and financial structure.

Dividends per Share

Unit	2019	2020	2021
KRW	1,000	1,200	1,300

Efforts to Guarantee Shareholder Activities

The general meeting of shareholders, where shareholder rights can be exerted based on transparent management information, is announced on the electronic disclosure system up to two weeks (in practice, four weeks) in advance, and shareholders can exercise their voting rights either directly or through proxy solicitation. GS E&C introduced an electronic voting system to enhance convenience for shareholders who wish to exercise their voting rights without attending the meeting. In accordance with Article 363-2 of the Commercial Act (Shareholder’s Rights to Make Proposals), we place no restrictions on the proposals made by shareholders to encourage them to propose an agenda at the general shareholders’ meeting. In line with such policy, we will continue to inform the procedure of shareholder proposals and strive to establish an internal process of processing an agenda, thereby increasing the convenience of presenting shareholder proposals.



145 meetings with institutional investors



Operation of electronic voting system for the general shareholders’ meeting

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Implementation of Responsible and Fair Ethical Management

A fair and ethical corporate culture is an obligation of a corporation to pursue sustainable growth. As the focus on corporate management has expanded recently from shareholders to all stakeholders, the social demand for ethical management is getting higher. In line with such trend, GS E&C strives to establish an ethical management environment encompassing partners as well as our employees to become a fair and responsible global company based on ethical management.

Ethics & Compliance

No. of employees who have completed on-line ethics education

5,842 persons

Incidents of individual ethical violations and actions taken: Dismissal

8 persons

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Implementation of Responsible and Fair Ethical Management

Ethics & Compliance

Ethical Management Process

System for Promotion of Ethical Management

Based on the three elements of ethical management, viz. “code of conduct, compliance monitoring organization, and consensus by education”, GS E&C promotes ethical management to establish the standards and environment that encourage employees to make a correct decision in a situation that presents an ethical dilemma.

GS E&C Ethics Management System

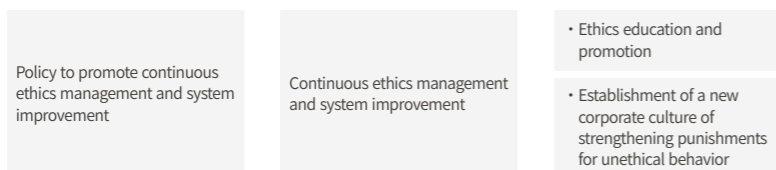
Goal

A company trusted by customers and society for its transparent and fair management practices

Directions



Activities



Fair Trade Voluntary Compliance Program

GS E&C established the CP (Compliance Program) Team to operate the fair trade voluntary compliance program. We established a system to propose clear behavior standards for compliance with fair trade related laws and to prevent the violation of law as well as to identify and take measures on violations of law in advance. The system satisfies 8 elements of the fair trade voluntary compliance program recommended by the Fair Trade Commission. In addition, we implemented education on the CP system and the purpose of its introduction for all employees along with a recognition survey related to CP, and at the beginning of each year, all employees including regular/dispatched employees at the head office, as well as professional positions / contract positions at each site, take an ethical management and fair trade practice oath for the establishment of fair trade voluntary compliance culture within the organization.

Internalization of CP

In 2022, GS E&C plans to introduce the CP grade assessment implemented by the Korea Fair Trade Mediation Agency through the establishment of measurable goals for CP operation and index management, reflection of CP promotion tasks on executive KPI, actualization of employee reward and punishment regulations, policy of restriction / reward. At the same time, we will strive to strengthen employees' recognition regarding the necessity of CP operation and to internalize the awareness of compliance through educating employees on the risks of legal violation and holding a voluntary compliance meeting.

CP Promotion Major Performance in 2021

Year	Performance
2021.5	<ul style="list-style-type: none"> Announcement of introduction (Website, disclosure on the company bulletin board, press media) Appointment of CEO Moo-Hyun Woo as CP manager
2021.6	<ul style="list-style-type: none"> Enactment of CP operation regulations Preparation of CP guidance Establishment of restriction and reward standards within the CP operation regulation Establishment of assessment standards Risk analysis and the establishment of an internal supervision system
2021.7	<ul style="list-style-type: none"> Distribution of CP guidance Education for all employees (understanding of the Fair Trade Act) Kick-off of the CP meeting
2021.9	<ul style="list-style-type: none"> Designation of responsible person for CP in each department with compliance risks
2021.10	<ul style="list-style-type: none"> In-depth education on each risk field (Cartel, internal transaction, subcontract, labeling and advertising, public announcement)
2021.11	<ul style="list-style-type: none"> Checking of the CP operation status and survey / Analysis of the level of recognition

CP Education Results in 2021

Method of education	Fields	Subject department
On-line education (Outside lecturer)	Subcontract, cartel, internal transaction	<ul style="list-style-type: none"> Subcontract: CM team, technology planning team Civil engineering / plant purchase team, etc. Cartel: Architecture sales team, urban maintenance team, bidding sales team, etc. Internal transaction: New business sections, business management team
On-line education (CP team)	Labeling and advertising	<ul style="list-style-type: none"> Housing marketing team, head of housing sales center, Xi Gallery workers
Distribution of educational material	Agreement	<ul style="list-style-type: none"> Housing sales team
Outside education (Association)	Public announcement	<ul style="list-style-type: none"> Funds team, SPC, person in charge of subsidiaries

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Implementation of Responsible and Fair Ethical Management

Ethics Committee

GS E&C operates the Ethics Committee to integrate the ethics management system into every decision-making process. The Ethics Committee performs deliberations and votes on ethical policy-related issues and reviews ethics management promotion activities and monitoring results, and also monitors the activity of the compliance officer to manage the legal risks. The CFO acts as the chairperson of the Committee and the executives in charge of each business HQ with extensive practical experience serve as steering committee members to perform the practical guidance / inspection / improvement activities related to compliance with the law, business regulations, etc. as well as expand the ethical management policy to each business HQ. The Ethics committee is held twice (once in the first/second half) in a year, and it was operated by the non-face-to-face mode in view of the COVID-19 situation in 2021. We are striving to foster an ethical corporate culture by rearranging the ethics management system, monitoring and inspecting unethical behaviors, and implementing ethics education and promotion on a regular basis despite difficulties caused by the pandemic.

Reporting Channels and Response to Ethical Violations

GS E&C encourages reporting on cases of ethical violations by offering a range of reporting channels including the On-line Company Reporting & Ethics Misconduct Channel as well as phone and fax lines, and operating the informant protection policy for the establishment of a sound and ethical corporate culture. The On-line Company Reporting & Ethics Misconduct Channel can be freely accessed through the in-house Intranet or GS E&C's homepage, and the general civil complaints and reports submitted by mails/telephone/fax from the outside are classified and managed through the "VOC (Voice Of Clients) management system". In particular, if a partner's employee reports an ethical violation related to a GS E&C employee, the informant is either rewarded or the informant's company is selected as an excellent partner. The Compliance Office conducts an investigation immediately upon receipt of the report. If the report on an ethical violation is found to be true, the employee involved and related employees are subjected to disciplinary action according to the personnel regulations, and the partner will be subject to sanctions according to the internal deliberation standards if they are involved in an act in violation of ethical standards.

In 2021, among the 55 reports received in total, 20 were found to be true and disciplinary actions were taken depending on the seriousness of the case. If a disadvantage to the informant occurs or is expected, GS E&C stipulates the policy of position change or aggravates punishment for retaliation, etc. to protect the identity of the informant and to increase the effectiveness of the reporting channel.

Reported and Investigated Cases of Ethical Violations

(Unit: cases)

Category	2019	2020	2021
Factual	26	24	20
False	37	46	35
Reports	63	70	55

Incidents of Individual Ethical Violations and Actions Taken *

(Unit: cases)

Category	2019	2020	2021
Dismissal	16	15	8
Recommended resignation	0	2	0
Suspension	12	10	4
Salary deduction	1	6	0
Total	29	33	12

* Including joint responsibility of senior managers

Preventing Ethics Management Risks through On-site Investigation Activity

GS E&C implements "Patrol Inspection" and "Issue Diagnosis" during the on-site investigation activities each year to prevent the ethical risks in advance given the characteristics of the construction business where on-site diagnosis of ethical status is crucial. By inspecting business procedures, and violations of compliance as well as individual ethical standards, corrective actions were taken immediately if any violations were found, and matters requiring improvement were shared with the related teams at the headquarters to find appropriate measures. In 2022, we plan to grant incentives to sites that showed outstanding performance based on on-site inspection to induce active participation in ethical management.

Patrol Inspection and Issue Diagnosis in 2021

Category	Description	No. of cases
Patrol inspection	An activity that focuses on preventing ethical violation factors by checking whether the project in question complies with the business procedure and identifying measures for improvement	38 cases
Issue diagnosis	An activity of increasing business efficiency by identifying the processes to be improved, such as unreasonable work practices and inefficient work	18 cases

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Implementation of Responsible and Fair Ethical Management

Expansion of Ethical Management Practice Culture

Ethics Survey to Ensure Improved Ethical Standards

GS E&C implements an “ethical survey” to verify the current status of ethical management and improvement directions as well as determine the overall ethical level of our employees. The contents of the questionnaire are designed with 30 items under categories including level of ethical management awareness, education and promotion activities, reporting system, etc., and the results are evaluated to prepare improvement measures. In 2022, it is planned to be data-based, and the trend of change during each period will be analyzed. The “Ethical survey” is intended to maintain a fair and transparent trading relationship in terms of employees and partners as well as to implement ethical management based on respect and cooperation with the principles of coexistence.

Ethics Education for Employees

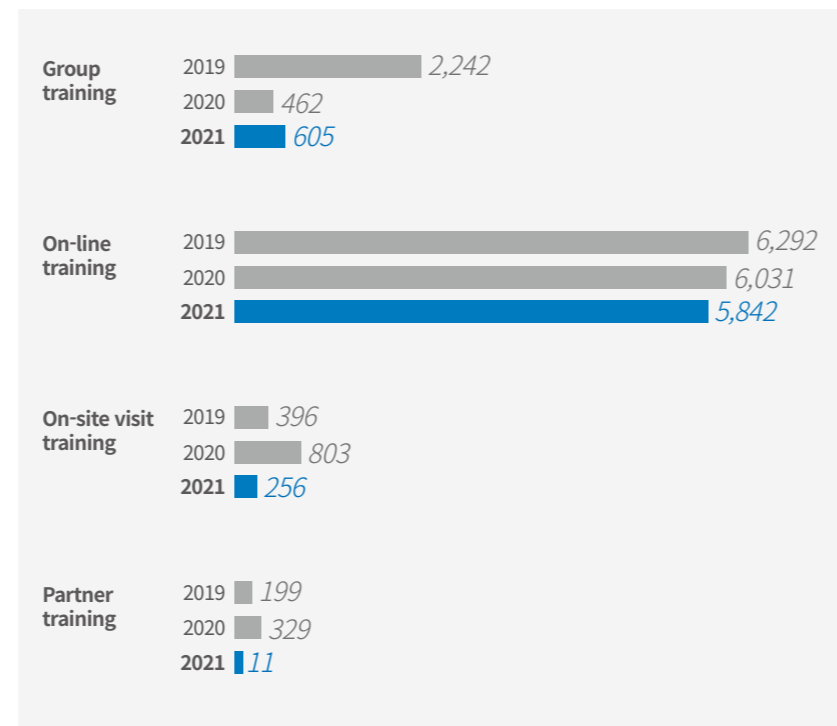
GS E&C utilizes various channels to provide ethics education and increase the ethical awareness of employees. In 2021, our employees were offered on-line ethics education under the themes of management of conflicts-of-interest, work ethics, ethical decision-making, and ethical leadership.

We also publish an ethics management newsletter to share the status of investigations on ethical violations and ethical violation cases and draw employees’ interest and strengthen participation in ethics management through quizzes to enhance their understanding.

Ethics Education for Partners

GS E&C visits partners’ worksites to provide them with ethics education, share the ethical policies of GS E&C and induce their participation to achieve shared growth. Educational contents are designed to prevent possible ethics management risks, on topics including the ethical standard system of GS E&C, ethical violation cases, and the ethical violation reporting channel. Partners are required to submit the Corporate Integrity Pledge when signing a transaction contract with us to prevent unfair trade practices, and commitment to the establishment of sound transaction practices with subcontractors is also part of the Code of Ethics and the related regulations. In 2021, there were difficulties to provide face-to-face education for partners due to COVID-19 and the number of participants in the education decreased, but we plan to expand the education programs gradually in 2022.

Participation in Ethics Education (Unit: Person)



Ethics Education Curriculum



On-line training

Major contents

- Prevention of workplace bullying (Abuse of power, verbal abuse, sexual harassment)
- Legal obligatory training (Improvement of the recognition of disabled, prevention of sexual harassment)
- Publication of the ethical management newsletter (Improvement of the ethical organization culture)



Off-line training

Major contents

- Negligence (Knows what to do, but would not do it!)
- Moral diet (It may be fine)
- Troublesome wrong acts
- Statistics on unethical behaviors and accident cases
- Whistle-blow
- Production and use of ethical management promotional poster

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Strengthening the Company-wide Risk Management

Under the rapidly changing management environment, the elements influencing the management activity of companies have become more diversified and complex and the uncertainty regarding the future has increased. In these circumstances, the importance of “company-wide risk management” has grown steadily, and it is important to form a bond of understanding among all employees regarding risk management. GS E&C has established the BOD centered company-wide risk management system to identify the potential risks that may affect the company, and the relevant risk is managed under the leadership of the corresponding risk management organization.

Core Risks



Strategic risk

- Eco-friendly construction, climate change, investment in new businesses



Operational risk

- Safety, partners, human capital



Regulatory policy risk

- Regulation and legislations, ethical management, politics and economy



Financial risk

- Finance



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Strengthening the Company-wide Risk Management

Company-wide Risk Management

Risk Management

Company-wide Risk Management

GS E&C has established a comprehensive and organic risk response system through close cooperation among each business sector and HQ. The company-wide risk areas such as business, investment, law, environment, social, HR, ethics, new business, fair trade, etc. are reviewed and identified based on each risk type. Risk management organizations such as subcommittees under the BOD, the business deliberation committee, compliance support organization, etc. are organized to maintain the BOD centered, company-wide risk management system.

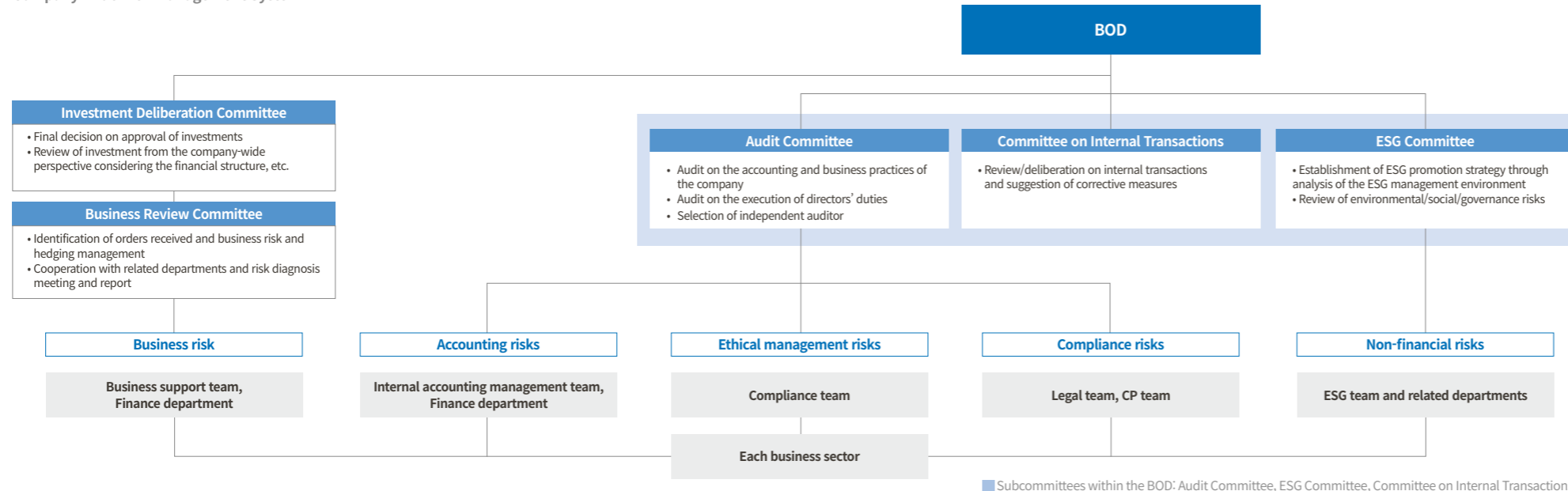
Management of Business Risk

To assess the business feasibilities of various projects, GS E&C conducts financial evaluation under supervision of the company-wide Business Review Committee. We manage the entire risks associated with the project through risk assessment and review of related departments during each stage of the project. We identify the risk in early stages and draw a conclusion by the correct decision making process to promote the project systematically and efficiently through the use of a checklist for RM and the establishment of risk deliberation procedure during each stage of project such as sales, bidding determination, estimation, report prior to bidding, report of bidding results, and project performance stage. In addition, a deliberation procedure is separately enacted at the stage of identifying new business to prepare the future growth engine for sustainable growth.

Management of Environment Risk

GS E&C establishes the BOD centered risk management system for environment risk management including non-financial risks other than the business risks. As the legal risk related to industrial accidents, as indicated by trends such as the adoption of the Serious Accidents Punishment Act, etc., has increased recently, monitoring on law / regulation compliance is implemented through the compliance support organization such as legal affairs team, and the autonomous compliance control standards are enacted and implemented through the CP team. In addition, ESG Committee reviews non-financial risks through exclusive ESG department, and the Committee on Internal Transactions and Audit Committee establish the ethical management and transparent organization culture through the audit of accounting and business of company, audit of duty execution of director, selection of external auditor, compliance activity monitoring, review on internal transactions, etc. and manage the internal / external risk of company in advance for sustainable management.

Company-wide Risk Management System



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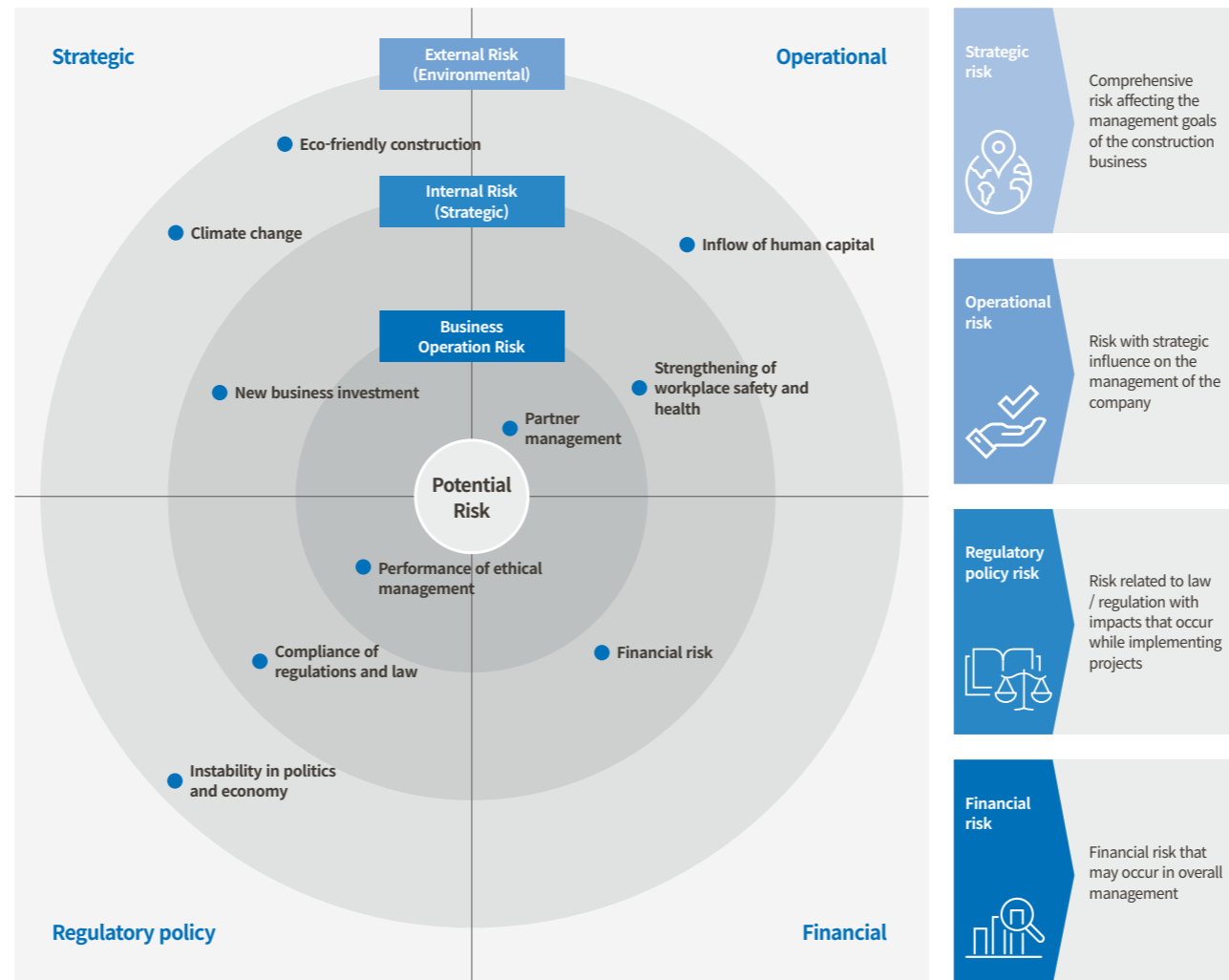
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Response to the Risk

Classification and Definition of Risk

To respond to the core risks effectively from company-wide perspectives, GS E&C classifies and defines the risks as strategic, operational, regulatory policy, and financial risks. The term strategic risk means comprehensive risks affecting the management goals and strategic direction of the company, and the term operational risk means risk related to personnel, process, technology, IT, and security threat that can affect the company management directly. The regulatory policy risk encompasses external risks pertaining to climate change, country risk in accordance with the advancement to overseas markets, etc., and financial risk includes uncertainties regarding industrial activity, exchange rate, business risk, etc. GS E&C makes sure that the proper risk response measures are made by each risk management organization within the company-wide risk management system with regard to each of the classified and defined risks.

Classification and Definition of Risks



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Strengthening the Company-wide Risk Management

Identification of Core Risk and Responding Status

Core risk	Definition of risk	Classification of risk	Impact on business	Response activity
Eco-friendly construction	<ul style="list-style-type: none"> Increase of demand for the reduction of energy consumption and GHG emissions in the building / construction field Strengthening of regulations related to Carbon Neutrality 	Strategic risk	Risk of reduction in management performance and project bidding received in energy business sector of GS E&C due to the decrease of demand	<ul style="list-style-type: none"> Investment in renewable energy(Solar power, wind power) Increase of investment in eco-friendly R&D technologies Plan to establish and promote a strategy for responding to Carbon Neutrality and climate change Flexible assignment of workforce
Climate change	<ul style="list-style-type: none"> Increase in environmental contamination caused by construction waste Impact of climate change on the construction site 	Strategic risk	Waste, wastewater, fine dust, GHG emissions, etc. causing environmental pollution at construction sites lead directly to financial losses. Reduction of working days due to adverse weather or occurrence of damage to safety and health due to climate change	<ul style="list-style-type: none"> Plan to establish and promote the strategy for responding to Carbon Neutrality and climate change Strengthening of monitoring and recycling on construction waste Water reuse and reduction in the discharge of wastewater
Compliance with regulations and law	<ul style="list-style-type: none"> Breach of the Serious Accidents Punishment Act Responses to the change in construction industry regulations 	Regulatory policy risk	When we fail to prepare for strengthened law or regulation, it would bring disadvantages in the bidding process, and there is a risk of reduced chances for winning contracts.	<ul style="list-style-type: none"> Strengthening of the safety health management system Compliance with the regulatory policy (Serious Accidents Punishment Act / Occupational Safety and Health Act) and monitoring of performance
Strengthening of workplace safety and health	<ul style="list-style-type: none"> Occurrence of accidents at workplace Occurrence of industrial accidents due to scorching heat and cold waves 	Operational risk	When there is an occurrence of industrial accidents, there is a possibility of breach of the Serious Accidents Punishment Act. When there is a workplace accident, there is a possibility of decline in the non-financial index assessment.	<ul style="list-style-type: none"> Strengthening of activities to prevent equipment accidents, etc. Strengthening of competency of construction / safety personnel and implementation of training Preventive management of heat / cold related diseases
Performance of ethical management	<ul style="list-style-type: none"> Violation of corporate ethical regulations Non-compliance with the Fair Trade Act 	Regulatory policy risk	Increase in the costs of responding to regulations such as fine, penalty, etc. and a possibility of losing the corporate brand image / reputation	<ul style="list-style-type: none"> Practice of ethical oath and strengthening of education on corporate ethics Operation of reporting channels and adoption of strong response against unethical behavior Operation of the fair trade voluntary compliance program (CP team)
Partner management	<ul style="list-style-type: none"> Partners' financial stability Violation of ethical management among partners On-site safety management Misuse of supreme status 	Operational risk	Possibility of financial loss due to partners, possibility of losing the corporate image due to the violation of ethical management by partners, and possibility of losing reliable relationships and termination of agreements with partners due to the misuse of supreme status	<ul style="list-style-type: none"> Partner risk assessment and response Operation of communication & consultation channels Operation of a construction and safety support system Operation of GS Partner and On-line whistleblowing system
Inflow of human capital	<ul style="list-style-type: none"> Worsening of hiring minors Workforce with insufficient skills Decrease in employee diversity 	Operational risk	Occurrence of labor force issues at the construction site Increase of costs in accordance with the hiring of workforce	<ul style="list-style-type: none"> Establishment of a human rights management system and the enactment of the Human Rights Charter Support the conversion of duty and workforce efficiency Provide equal opportunities by expanding employee diversity and inclusive hiring
New business investment	<ul style="list-style-type: none"> Lack of future growth engine Competitors attracting more opportunities for new business 	Strategic risk	Declined corporate competitiveness owing to lack of future growth engine	<ul style="list-style-type: none"> Enhancement and concentration of new business competencies Secure differentiated technology based on future growth industries
Instability in politics and economy	<ul style="list-style-type: none"> World economy recession and political conflicts Labor strikes 	Regulatory policy risk	Decreased demand for construction due to economic recession Reduction in the number of working days due to labor strikes	<ul style="list-style-type: none"> Strengthening the monitoring of domestic/overseas trends and risk management Improvement of relationship with stakeholders and establishment of trusted relationships: Prevention of negative movements such as strikes, boycott, negative media reports, etc.
Financial risk	<ul style="list-style-type: none"> Economy/raw material/business/regulations Possibility of fluctuation in exchange rate/oil price 	Financial risk	Occurrence of costs risk due to the increase of raw material costs, etc. Declined competitiveness within the capital market due to the increase of debt ratio	<ul style="list-style-type: none"> Ordinary management of financial risks Monitoring of the raw material market situation and diversification of supply channels Management of debt ratio through strengthening of profit-centered housing projects

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Establishment of Transparent Governance

Implementation of Responsible and Fair Ethical Management

[Strengthening the Company-wide Risk Management](#)

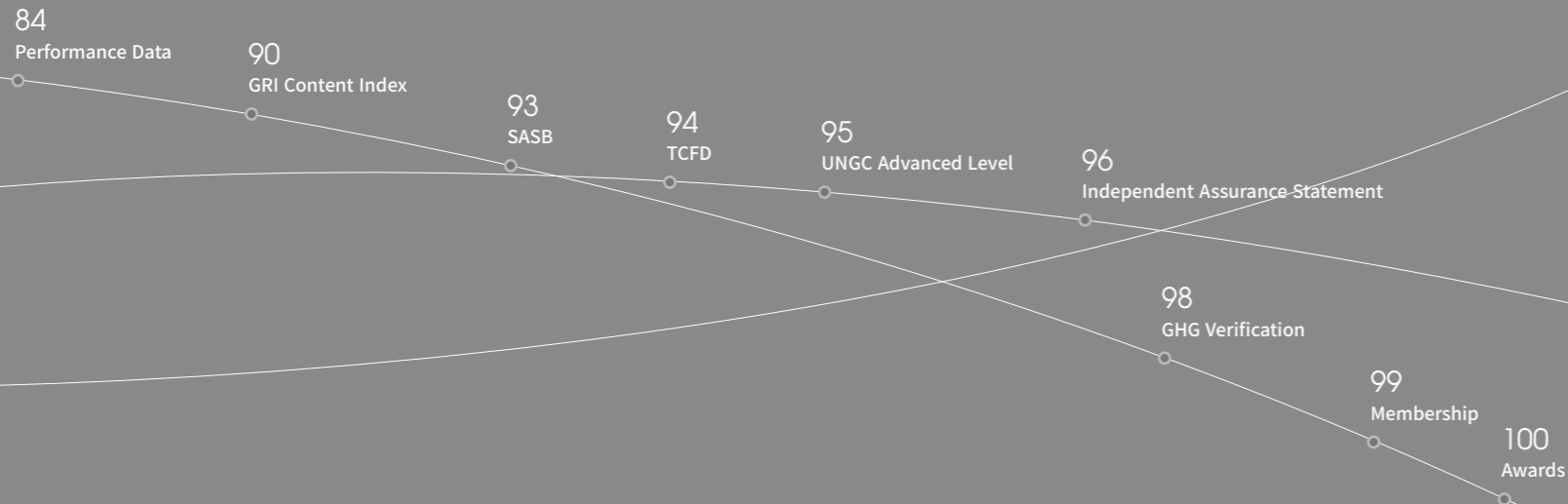
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Performance Data

Financial Value

FY 2021: January 1, 2021 through December 31, 2021
 FY 2020: January 1, 2020 through December 31, 2020

Scope of data

A Headquarters / B domestic sites 151 / C technology research center 1 /
 D overseas branches 10 / E overseas business sites 41 /
 F overseas subsidiaries 17 / G partners 891

Category	Unit	FY 2021	FY 2020
Consolidated statements of income			
Sales		90,366	101,229
Cost of sales		76,858	85,878
Gross profit		13,508	15,351
Selling and administrative expenses		7,043	7,847
Operating profit		6,465	7,504
Other operating income		3,198	2,444
Other operating expenses	KRW 100 million	2,587	4,578
Investment gain and loss		51	(61)
Financial income		1,277	2,103
Finance costs		1,825	2,228
Profit before income tax		6,579	5,184
Income tax expenses		2,229	1,888
Net income		4,288	3,297
Consolidated statements of financial position			
Current assets		81,951	72,519
Non-current assets		69,886	65,188
Total assets		151,837	137,707
Current Liabilities		67,693	57,289
Non-current liabilities	KRW 100 million	35,417	37,297
Total liabilities		103,110	94,586
Issued capital		4,279	4,035
Capital surplus		9,513	8,157
Retained earning and others		34,935	30,929
Total equity		48,727	43,121

*The financial statements cover GS E&C and its 32 subsidiaries including ezville.

Industrial Value

Category	Unit	2019	2020	2021	Scope of data
Order newly received abroad	%	29.8	19.4	28.4	
New overseas markets	No. of nations	1	1	1	A-F

Intellectual Value

Category	Unit	2019	2020	2021	Scope of data
R&D expenses	KRW 100 million	483	339	340	A, C
R&D investment rate	%	0.46	0.33	0.38	A, C
Onsite technology application	ea	92	59	81	B, E
Technologies developed	ea	28	23	25	A, C

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Performance Data

Environmental Value

Category		Unit	2019	2020	2021	Scope of data
Amount of construction materials used	Ready-mixed concrete	m ³	4,668,419	3,747,229	4,130,527	A-C
	Cement	ton	124,379	129,095	128,379	
	Aggregates	m ³	793,882	1,232,631	629,252	
	Asphalt	ton	58,294	201,082	133,599	
	Sand	m ³	44,350	1,322	1,028	
	Steel	ton	407,656	276,231	360,186	
	Plaster board	ton	40,856	37,237	31,843	
	Amount of recycled aggregates used	m ³	58,820	135,541	135,744	
Amount of water used	Total		2,758,690	2,762,034	2,691,483	A-C
	Service water	m ³	648,344	649,130	632,549	
	Underground water		1,247,449	1,248,961	1,217,059	
	River water		862,897	863,943	841,875	
	Intensity of building water ²⁾	m ³ /m ²	4.82	4.82	4.71	
Amount of water reused	ton	173,798	159,639	176,068		
Amount of energy used	Total		4,020	3,439	3,689	A-F
	LNG (city gas, natural gas)		172	101	99	
	Kerosene		59	64	84	
	Diesel	TJ	2,153	1,756	2,088	
	Gasoline		44	32	26	
	Electric power		1,569	1,466	1,376	
	Others		23	19	16	
Intensity of building energy ³⁾	MWh/m ²	0.13	0.12	0.12		
Amount of waste generated	ton	450,870	792,460	1,049,565		
Waste treatment	Recycling		436,765	789,997	1,047,128	A-C
	Landfill	ton	2,791	1,696	1,817	
	Incineration		11,314	767	620	

1) Data covers 100% domestic and overseas sites and buildings.
 2) Intensity of building water = Sum of annual water consumption / Total floor area (11 buildings owned including HQ)
 3) Intensity of building energy = Sum of annual electricity use / Total floor area (11 buildings owned including HQ)
 4) Intensity of GHG emissions from buildings = Sum of annual GHG emissions from buildings owned / Total floor area (11 buildings owned including HQ)

Category		Unit	2019	2020	2021	Scope of data
GHG emissions	Total		244,959	207,747	225,570	A-F
	Scope1 (Direct emissions)		58,994	49,466	46,324	
	Scope2 (Indirect emissions)	tCO ₂ -e	76,226	71,211	65,838	
	Scope 3 (Other indirect emissions)		109,739	87,071	113,408	
	Intensity of GHG emissions from building ⁴⁾	tCO ₂ -e/m ²	0.08	0.08	0.08	
	Amount of GHG intensity emissions	tCO ₂ -e/ KRW 100 million	2.38	2.14	3.00	
GHG emission reduction (Scope 1, 2)	Planned emissions (allocated by the government)		111,932	116,675	113,787	A-B
	Actual emissions	tCO ₂ -e	108,713	108,682	95,094	
	Reduction		3,219	7,993	18,693	
Harmful chemical discharge	Waste oil, waste paint, etc.	ton	57	127	124	A-B
COD discharge	Amount of discharge	ton	-	-	1	A (Elysian Gangchon, Elysian Jeju)
	Discharge concentration	ppm	-	-	5.3	
	Legal criteria	ppm	-	-	20.0	
BOD discharge	Amount of discharge	m ³	0.2	0.2	0.3	A (Elysian Gangchon, Elysian Jeju)
	Discharge concentration	ppm	0.7	1.0	1.6	
	Legal criteria	ppm	10.0	10.0	10.0	
SS discharge	Amount of discharge	m ³	0.3	0.4	0.3	A-C
	Discharge concentration	ppm	1.1	1.8	1.3	
	Legal criteria	ppm	10.0	10.0	10.0	
Green purchases	Total		576.00	837.60	938.15	A-C
	HB Certified		123.02	129.16	42.89	
	Highly energy-efficient machinery		149.00	8.54	285.66	
	Energy Consumption Efficiency Grade 1 or 2	KRW 100 million	154.23	236.70	231.57	
	Eco-Label		139.67	459.95	357.93	
Others		10.11	3.25	20.10		
High-efficiency buildings		%	50	67	68	
Legal environmental regulations	Corporate violations subject to fine	Cases	0	0	0	
	Corporate fine	KRW 1,000	0	0	0	
Environmental education	Eco environment course completion	Persons (Accumulated)	738	776	892	

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Integrated Environmental Management Performance

Category	Description	Scope of data
GHG emissions	2021 goal	Reduction (allocated by the government)
	2021 achievement	16.4%
Reuse of water	2021 goal	3.3%
	2021 achievement	6.5%
Waste recycling rate	2021 goal	Over 96.2%
	2021 achievement	99.8%
Green purchase rate	2021 goal	Over 10.3%
	2021 achievement	9.5%
Investment in green products (Environment management cost)	2021 goal	Over 100%
	2021 achievement	113%
Compliance with environmental laws	2021 goal	0
	2021 achievement	0

Human Value

Category	Unit	2019	2020	2021	Scope of data
Composition of employees	Total no. of employees	Persons	6,672	6,350	5,433
	Age (below 30)	Persons	500	421	429
	Age (30-50)	Persons	4,606	4,219	3,419
	Age (above 51)	Persons	1,566	1,710	1,585
	Male employees	Persons	6,035	5,698	4,853
	Female employees	Persons	637	652	580
	Percentage of female employees	%	9.5	10.3	10.7
	Percentage of regular employees	%	72.0	73.0	71.8
	Percentage of contract employees	%	28.0	27.0	28.2
	Employee diversity	Percentage of female management staff	%	1.6	2.6
Percentage of female management staff in profit-creating fields		%	6.0	5.5	4.4
Female manager (Junior Staff B, Junior Staff C)		Persons	438	373	344
Female manager (Senior Staff A, Senior Staff B, Junior Staff A)		Persons	197	278	235
Female manager (Executive)		Persons	2	1	1
No. of employees with disabilities		Persons	126	115	99

Category	Unit	2019	2020	2021	Scope of data
Employee diversity	Percentage of employees with disabilities	%	1.5	1.9	1.5
	Persons entitled to veterans' benefits	Persons	97	109	90
	Foreigners	Persons	48	29	18
	Discharged commissioned officers	Persons	298	275	244
Equal wage (female to male ratio)	Executive (base wage)	KRW	302,475,231	317,462,250	315,887,200
	Management staff (base wage, male)	KRW	84,165,237	87,206,736	87,309,103
	Management staff (base wage, female)	KRW	71,726,184	79,643,418	77,258,149
	Management (base wage, female to male)	%	0.85	0.91	0.88
	Management staff (base wage + performance - related pay, male)	KRW	102,412,183	116,168,220	114,511,851
	Management staff (base wage + performance - related pay, female)	KRW	77,055,481	95,796,348	92,928,984
	Management staff (base wage + performance - related pay, female to male)	%	0.75	0.82	0.81
	Non-management staff (male)	KRW	61,165,982	67,510,139	51,506,445
	Non-management staff (female)	KRW	49,363,793	58,498,410	36,773,711
	Non-management staff (female to male)	%	0.81	0.87	0.71
Employee retention rate	Retirement rate	%	3.9	3.7	6.2
	Voluntary turnover rate	%	2.6	2.0	5.4
	College students' job preference ranking	Ranking	1	1	3
Employee training	Employee training expenses	KRW 100 million	19.2	14.4	18.4
	Training hours per employee	Hours	44.8	28.9	46.3
HR development	Employees' engagement	Hours	59.6	57.0	55.0
	Organization capacity evaluation response rate	%	88.0	90.0	87.0
	Participants in stress zero program	Persons	3,987	1,554	1,139
	Participants in leadership training	Persons	1,260	697	7,059
Labor union	Participants in job competence training	Persons	30,298	26,098	18,691
	Participants in global talent cultivation training	Persons	3,060	2,630	2,608
	Percentage of labor union membership	%	36.5	32.7	26.2
	No. of labor union members	Persons	814	723	457

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Human Value

Category	Unit	2019	2020	2021	Scope of data	
Maternity/Parental leave	No. of employees eligible for parental leave (Male)	Persons	1,682	1,635	1,349	A-F
	No. of employees eligible for parental leave (Female)	Persons	141	142	149	
	No. of employees who used parental leave (Male)	Persons	53	76	130	
	No. of employees who used parental leave (Female)	Persons	55	62	87	
	No. of employees who returned after parent leave (Male)	Persons	22	24	32	
	No. of employees who returned after parent leave (Female)	Persons	30	23	31	
	No. of employees who worked for 12 months after parental leave (Male)	Persons	15	19	23	
	No. of employees who worked for 12 months after parental leave (Female)	Persons	18	29	20	
	Return rate after parental leave (Male)	%	48.9	45.3	42.1	
	Return rate after parental leave (Female)	%	63.8	41.8	50.0	
	Retention rate after return (Male)	%	100.0	86.4	95.8	
	Retention rate after return (Female)	%	100.0	96.7	87.0	
	Handling of employee grievances	Total		29	37	
Domestic		Cases	23	35	23	
Overseas			6	2	1	
Safety Innovation School	No. of employees who have completed Safety Innovation School	Persons	5,905	1,341	1,060	A-G
	Safety Innovation School's training visits		149	61	48	
Executives' safety and health management activities	CEO's visit to site	Times	10	10	10	B
	CSO's visit to site		270	110	83	
Critical injuries of partners	Total deaths		5	3	1	G
	Employee		2	0	0	
	Partners	Persons	3	3	1	
	Occupational accident		1	2	1	
Industrial accident	Construction/Technology accident		4	1	0	A-G
	Employee LTIFR		0.00	0.09	0.12	
	Partner LTIFR	-	2.11	3.29	2.96	
	Employee OIFR		3.54	2.21	4.78	

Training hours per employee by gender and job grade in 2021

Category	Unit	Gender		Job Grade		Scope of data
		Male	Female	Senior Staff	Junior Staff	
Online training	Hours	21.2	19.9	23.9	17.5	A-F
In-group training		27.1	13.0	17.6	34.2	
Total		48.3	32.9	41.5	51.7	

Employee performance evaluation rate by gender and job grade in 2021¹⁾

Category	Unit	Male	Female	Senior Staff	Junior Staff	Professional service	General service	Scope of data
Regular worker	%	97.5	83.2	98.6	92.6	-	-	A-F
Contract worker		84.5	77.4	-	-	95.4	77.0	

1) Includes employees not subjected to performance evaluation (employees on leaves, newly employed, etc.), evaluation on employees that are subjected to performance evaluation are completed (100%)

Foreign employees in 2021

Nationality	India	Philippines	Nepal	Bangladesh	Egypt	Vietnam	Others	Total	Scope of data
No. of persons	127	148	14	364	20	159	433	1,265	A-F

Employee diversity goals in 2022

Category	Description	Category	Scope of data
Employee diversity	Percentage of female management staff	Over 1.9%	A-F
	Percentage of female management staff in profit-creating fields	Over 4.0%	
	Junior Staff	Over 330	
	Senior Staff, Junior Staff	Over 230	
	Female Manager (Executive)	Over 1	
	No. of employees with disabilities	Over 90	
	Percentage of employees with disabilities	Over 1.3%	
	Veterans	Over 90	
	Foreigner	Over 18	
	Discharged commissioned officers	Over 240	
Recruitment of new employees by age, gender, and nationality	Over 70		

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Social Relationship Capital

Category		Unit	2019	2020	2021	Scope of data
Partners	No. of partners	ea	834	866	891	
	No. of major partners		345	366	378	
	Sales ratio of major partners	%	62.8	69.3	69.0	
	Partner ratio with financial risk		1.76	0.70	0.70	
	Partner ratio with environmental risk	%	0.00	0.00	0.00	
	Partner ratio with social risk		0.00	0.00	0.00	
Financial support for partners	Management support fund	KRW 100 million	266	252	390	
	Mutual pension	KRW 100 million	195	194	189	
	Cash payment	%	92.6	94.5	95.2	
	Retention rate of cash payment	%	100	100	100	
	Payment due date	Days	10	10	10	
Technical support for partners	New technology joint development expenses	KRW 100 million	3.2	4.0	2.6	G
	Patent and new technology registration	Cases	9	7	5	
	PRECON activities for cost reduction		15	19	26	
Support for partners' training	Xi CEO forum participants		60	20	42	
	Partners' employees who completed Safety Innovation School	Persons	225	132	275	
	Partners' site directors and working-level staff who completed training		209	313	236	
Support for partners' communication	Partners' CEOs who participated in the forum	Persons	100	20	42	
	Outsourcing policy briefings held		4	5	3	
	Internal review committee meetings held	Times	17	19	17	
Client satisfaction	Project management		85.1	87.4	88.5	
	Project workforce	Points, out of 100	89.4	86.9	88.2	
	Communication		87.6	88.5	88.4	
	General satisfaction		87.3	87.4	88.4	
Social contribution	Cash donation for social contribution	KRW 100 million	52.4	57.7	56.1	
	No. of employees who have participated in social contribution activities	Persons	621	117	95	
	(Total) Investment in social contribution activities	KRW 100 million	55.5	62.3	59.1	
Types of social contribution	Charitable donation	%	34.3	51.0	48.2	A-F
	Investment in community	%	58.9	46.0	48.4	

Category		Unit	2019	2020	2021	Scope of data
Types of social contribution	Commercial initiative	%	6.8	3.0	3.4	A-F
No. of social contribution beneficiaries	No. of welfare beneficiaries	Persons	7,653	6,217	3,815	
	No. of education beneficiaries	Persons	3,446	3,352	1,653	
	No. of cultural support beneficiaries	Persons	28,110	10,368	16,238	
Media exposure		Times	62	61	221	A-C
Customer satisfaction	Complaints submitted by housing customers	Cases	5,845	6,029	4,115	
	No. of complaints received through the VOC system		908	4,204	1,430	
	Xi brand GCSI score	Points, out of 100	73.6	73.7	73.7	
Customer satisfaction survey	Percentage of respondents who answered positively	%	87.3	82.3	83.0	
	Scope of data: (Percentage compared to sales, number of customers, etc.)		100.0	100.0	100.0	

Voluntary Sustainable Management Initiatives

UN Global Compact	Dow Jones Sustainability Indexes DJSI	Guidance on Social Responsibility ISO 26000	Carbon Disclosure Project CDP
Introduced in 2010	Introduced in 2011	Introduced in 2011	Introduced in 2011

Funding for Major Associations in 2021

Category	Unit	Support amount	Membership purpose
Construction Association of Korea		594.8	To amend the domestic construction regulations
Federation of Korean Industries		660.0	To amend domestic construction laws
International Contractors' Association of Korea		363.5	To amend overseas construction regulations
Korea Business Council for Sustainable Development	KRW 1 million	80.0	To study sustainable development policies
Korea Chamber of Commerce and Industry		107.6	To amend domestic construction laws
Financial support for other major associations		2,905.5	Korea International Trade Association and other tax-exempt institutions (e.g., Think Tank)

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Economy/Management

Category		Unit	2019	2020	2021	Scope of data	
General information	General status	Total assets	KRW 100 million	131,712	137,707	151,837	A-F
		Credit Rating (corporate bill)	-	A2	A2	A2+	
		Credit Rating (corporate bond)	-	A	A	A+	
		No. of business sites	ea	190	196	192	
		Total order balance	KRW 100 million	442,528	436,891	486,230	
	Consolidated sales by business sector	Architecture & Housing		60,146	58,038	60,912	
			Plant	31,485	27,545	12,997	
		Infrastructure	KRW 100 million	8,799	8,842	7,803	
		New Business		2,936	6,111	7,773	
		Others		800	693	881	
Consolidated orders by business sector	Architecture & Housing		51,249	88,813	85,589		
		Plant	50,025	7,453	10,265		
	Infrastructure	KRW 100 million	6,022	14,140	29,558		
	New Business		-	14,081	7,888		
	Others		-	-	-		
Order received abroad by business sector	Architecture & Housing		3,528	3,568	337		
		Plant	26,415	1,003	1,357		
	Infrastructure	KRW 100 million	45	5,428	27,785		
	New Business		-	14,081	7,201		
	Total		29,988	24,080	36,680		
Sales by market	Korea		73,325	80,230	72,552		
		Middle East	KRW 100 million	14,281	6,425	2,450	
	China & Southeast Asia		9,598	6,478	5,070		
	Others		6,962	8,096	10,293		
	Overseas business sites	Overseas branches	-	10 branches in 10 countries	10 branches in 10 countries	10 branches in 10 countries	
Overseas subsidiaries		-	14 subsidiaries in 11 countries	17 subsidiaries in 12 countries	17 subsidiaries in 13 countries		
Board of Directors	BOD operation	BOD meetings held	Cases	9	9	8	
		No. of items discussed	Cases	19	15	22	
		Participation in BOD meeting	%	92	97	98	
	No. of persons	No. of female executives	Persons	0	0	1	
		Inside directors	Persons	2	2	2	
		Outside directors	Persons	4	4	4	
		Non-executive director	Persons	1	1	1	
		Total	Persons	7	7	7	

Category		Unit	2019	2020	2021	Scope of data	
Board of Directors	Whether holding a non-executive director position and an outside director position at the same time	Directors for which the number of other positions is limited to less than 4	Persons	4	4	4	A-F
		Outside directors who have experience in construction	Persons	3	3	1	
	Number of other positions restricted for directors	ea	2	2	2		
	BOD performance evaluation	BOD self-evaluation result	Points, out of 5	4.7	4.8	4.8	
BOD remuneration	Remuneration	Base pay and sundry allowances for CEO	KRW	2,300,358,330	2,092,708,240	2,025,511,880	
		Average annual salary	Cases	109,392,594	80,949,545	70,085,710	
	CEO's remuneration	CEO's remuneration to average employee annual salary	Times	21.0	25.9	28.9	
Ethics management (including direct/next upper rank position's joint responsibility)	Individual violations	Total No. of violations		29	33	12	
		Dismissal		16	15	8	
		Demotion	Cases	0	2	0	
		Suspension		12	10	4	
		Pay cut		1	6	0	
	Reported case investigated	True		26	24	20	
			False	Cases	37	46	35
			Report		63	70	55
	Ethical education	Onsite education (including education for partners)		595	1,132	267	
			In-Group training	Persons	2,242	462	605
Online training			6,292	6,031	5,842		
Partners' participation			2.2	4.3	0.2		
Executives' participation		%	0.5	0.6	0.7		
Employees' participation		97.3	95.0	99.1			
Industrial value	New business	Order newly received abroad	%	29.8	19.4	28.4	A ~ F
		New overseas markets	No. of countries	1	1	1	
Knowledge value	New technology development	R&D expenditures	KRW 100 million	483	339	340	A, C
		R&D investment rate	%	0.46	0.33	0.38	A, C
		Onsite technology application	ea	92	59	81	B, E
		Technologies developed	ea	28	23	25	A, C

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GRI Content Index

General Disclosures (GRI 102: General Disclosures 2016)

Subjects	Index	Disclosure	Reporting Page	Assurance	ISO 26000	UN SDGs
Organizational profile	102-1	Name of the organization	7p	●	6.3.10/6.4.1-6.4.2/ 6.4.3/6.4.4/6.4.5/ 6.8.5/7.8	
	102-2	Activities, brands, products, and services	7-12p	●		
	102-3	Location of headquarters	7p	●		
	102-4	Location of operations	7p	●		
	102-5	Ownership and legal form	7p	●		
	102-6	Markets served	8-12p	●		
	102-7	Scale of the organization	7p	●		
	102-8	Information on employees and other workers	86-87p	●		
	102-9	Supply chain	57-59p	●		
	102-10	Significant changes to the organization and its supply chain	11 p of Business Report	●		
	102-11	Precautionary principle or approach	79-82p	●		
	102-12	External initiatives	88p	●		
	102-13	Membership of associations	99p	●		 
Strategy	102-14	Statement from senior decision-maker	5p	●	4.7/6.2/7.4.2	
	102-15	Key impacts, risks, and opportunities	82p	●		
Ethics and Integrity	102-16	Values, principles, standards, and norms of behavior	76p	●	4.4/6.6.3	
	102-17	Mechanisms for advice and concerns about ethics	77p	●		
Governance	102-18	Governance structure	71-73p	●	6.2/7.4.3/7.7.5	
	102-21	Consulting stakeholders on economic, environmental, and social topics	72-73p	●		
	102-22	Composition of the highest governance body and its committees	71-72p	●		
	102-23	Chair of the highest governance body	71p	●		
	102-24	Nominating and selecting the highest governance body	72-73p	●		
	102-25	Conflicts of interest	71p	●		
	102-26	Role of highest governance body in setting purpose, values, and strategy	72-73p	●		
	102-29	Identifying and managing economic, environmental, and social impacts	73p	●		
	102-40	List of stakeholder groups	22p	●		
Stakeholder engagement	102-41	Collective bargaining agreements	55p	●	5.3	
	102-42	Identifying and selecting stakeholders	22p	●		
	102-43	Approach to stakeholder engagement	22p	●		
	102-44	Key topics and concerns raised	22p	●		
	102-45	Entities included in the consolidated financial statements / Business Report	85-90p of Business Report	●		
Reporting practice	102-46	Defining report content and topic Boundaries	2p	●	5.2/7.3.2/ 7.3.3/7.3.4	
	102-47	List of material topics	21p	●		
	102-48	Restatements of information	n/a	●		
	102-49	Changes in reporting	n/a	●		
	102-50	Reporting period	2p	●		
	102-51	Date of most recent report	2p	●	7.5.3/7.6.2	
	102-52	Reporting cycle	2p	●		
	102-53	Contact point for questions regarding the report	2p	●		
	102-54	Claims of reporting in accordance with the GRI Standards	2p	●		
	102-55	GRI Content Index	90-92p	●		
	102-56	External assurance	96-97p	●		

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Topic Specific Disclosures

Subjects	Index	Disclosure	Reporting Page	Assurance	ISO 26000	UN SDGs		
Topic 1: Workplace safety management								
GRI 103: Management Approach 2018	103-1	Explanation of the material topic and its Boundary	42p	●	6.4.6/6.8.8			
	103-2	The management approach and its components						
	103-3	Evaluation of the management approach						
Occupational Health and Safety	403-1	Occupational health and safety management system	43p	●				
	403-2	Hazard identification, risk assessment, and incident investigation	43-46p	●				
	403-4	Worker participation, consultation, and communication on occupational health and safety	43-46p	●				
	403-5	Worker training on occupational health and safety	44p	●				
	403-9	Work-related injuries	87p	●				
Topic 2: Construction waste management								
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	24p	●	6.5.3			
	103-2	The management approach and its components						
	103-3	Evaluation of the management approach						
Wastewater and Waste	306-1	Waste generation and significant waste-related impacts	29-31p	●				
	306-2	Management of significant waste-related impacts	29-31p	●				
	306-3	Waste generated	85-86p	●				
	306-4	Waste diverted from disposal	85-86p	●				
	306-5	Waste directed to disposal	85-86p	●				
Topic 3: Eco-friendly technology development								
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	39p	●			6.5.4/6.5.5	  
	103-2	The management approach and its components						
	103-3	Evaluation of the management approach						
Energy	302-5	Reductions in energy requirements of products and services	40p	●				
Water	303-1	Interactions with water as a shared resource	40p	●				
Topic 4: GHG and air pollution emission management								
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	32p	●	6.5.3/6.5.4/6.5.5			
	103-2	The management approach and its components						
	103-3	Evaluation of the management approach						
Emissions	305-1	Direct (Scope 1) GHG emissions	85-86p	●				
	305-2	Energy indirect (Scope 2) GHG emissions	85-86p	●				
	305-3	Other indirect (Scope 3) GHG emissions	85-86p	●				
	305-4	GHG emissions intensity	85-86p	●				

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GRI Content Index

Topic 5: Increase customer satisfaction

Subjects	Index	Disclosure	Reporting Page	Assurance	ISO 26000	UN SDGs
Topic 5: Increase customer satisfaction						
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	42p	●	6.7.4	
	103-2	The management approach and its components				
	103-3	Evaluation of the management approach				
Customer health and safety	416-1	Assessment of the health and safety impacts of product and service categories	43~46p	●		
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	43p	●		
Topic 6: Climate change response activities						
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	32p	●	6.5.3/6.5.4/6.5.5	 
	103-2	The management approach and its components				
	103-3	Evaluation of the management approach				
Energy	302-1	Energy consumption within the organization	85p	●		
	302-4	Reduction of energy consumption	38p, 85p	●		
Topic 7: Respect for human rights						
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	49p	●	6.3.3/6.3.5/6.6.6	
	103-2	The management approach and its components				
	103-3	Evaluation of the management approach				
Human Rights Assessment	412-1	Operations that have been subject to human rights reviews or impact assessments	53p	●		
	412-2	Employee training on human rights policies or procedures	53p	●		
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	53p	●		
Topic 8: Ethical Management						
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	75p	●	4.6	
	103-2	The management approach and its components				
	103-3	Evaluation of the management approach				
Anti-corruption	205-1	Operations assessed for risks related to corruption	77p	●		
	205-2	Communication and training about anti-corruption policies and procedures	78p	●		
	205-3	Confirmed incidents of corruption and actions taken	77p	●		
Environmental compliance	307-1	Non-compliance with environmental laws and regulations	85p	●		
Topic 9: Creating a sustainable supply chain						
GRI 103: Management Approach 2016	103-1	Explanation of the material topic and its Boundary	56p	●	6.4.6/6.8.8	
	103-2	The management approach and its components				
	103-3	Evaluation of the management approach				
Supply Chain Environment Assessment	308-2	Negative environmental impacts in the supply chain and actions taken	57p	●		
Social Assessment of Supply Chain	414-2	Negative environmental impacts in the supply chain and actions taken	57p	●		
Supplementary assurance index						
Economic Performance	201-1	Direct economic value generated and distributed	74p	●	6.8.1~6.8.2/6.8.3/6.8.7	

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SASB

Topic	Code	Classification	Metrics	Description	Page
Environmental Impacts of Project Development	IF-EN-160a.1	Quantitative	Number of incidents of non-compliance with environmental permits, standards, and regulations	GS E&C is fulfilling its legal responsibilities by complying with environmental regulations. As of December 31, 2021, there was no violation of environmental laws for which administrative measure under its corporate name was finalized.	85p
	IF-EN-160a.2	Qualitative	Discussion of processes to assess and manage environmental risks associated with project design, siting, and construction	GS E&C operates an environmental management system in accordance with procedures and guidelines for related fields based on the Environmental Manual. We conduct a preliminary impact assessment before construction, and evaluate and manage environmental risks to proactively support environmental issues to prevent risks. In addition, we conduct environmental management competency training for employees and suppliers to strengthen their environmental awareness.	25p
Structural Integrity & Safety	IF-EN-250a.1	Quantitative	Amount of defect- and safety-related rework costs	As of 2021, the defect-and repair cost is KRW 84,626 million (on a consolidated basis) and is transparently disclosed in the 2021 Business Report (page 212).	
	IF-EN-250a.2	Quantitative	Total amount of monetary losses as a result of legal proceedings associated with defect- and safety-related incidents	As of 2021, it is KRW 5.5 million. (Page 456 of the 2021 Business Report)	
Workforce Health & Safety	IF-EN-320a.1	Quantitative	(1) Total recordable incident rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees	Industrial accidents of employee are disclosed. In 2021, the number of deaths is one for employee, LTIFR 0.12 for employees, LTIFR 2.96 for partners, and OFIR 4.78 for employees.	87p
Lifecycle Impacts of Buildings & Infrastructure	IF-EN-410a.1	Quantitative	Number of (1) commissioned projects certified to a third-party multi-attribute sustainability standard and (2) active projects seeking such certification	In 2021, 13 construction sites were certified to an eco-friendly certification. They were certified as buildings with energy efficiency grade 1 in accordance with Article 17 of the 'Green Building Creation Support Act' and Article 11 (3) of the 'Rules for Certification of Building Energy Efficiency Rating and Zero Energy Buildings'.	
	IF-EN-410a.2	Qualitative	Discussion of process to incorporate operational-phase energy and water efficiency considerations into project planning and design	GS E&C is practicing environmental management in all its business processes including design and operation. In particular, we proactively respond to key environmental fields related to the construction industry such as GHG emissions, water resources, and waste. We achieved 26 cases of construction of waste-to-energy facilities and 28 cases of operation by actively utilizing waste-to-energy technology.	29-31p
Climate Impacts of Business Mix	IF-EN-410b.1	Quantitative	Amount of backlog for (1) hydrocarbon related projects and (2) renewable energy projects	There are two renewable energy operation projects (Zakarpatia Solar PV 24MW in Ukraine, SECI IV Solar PV 300MW in India). The amount of backlog is 344 million dollars (as of December 31, 2021, corresponding to KRW 407.5 billion when initial exchange rate of KRW 1,185.50 is applied).	
	IF-EN-410b.2	Quantitative	Amount of backlog cancellations associated with hydrocarbon-related projects	As of the end of 2021, no related projects were canceled.	
	IF-EN-410b.3	Quantitative	Amount of backlog for non-energy projects associated with climate change mitigation	As of the end of 2021, no orders were received.	
Business Ethics	IF-EN-510b.1	Quantitative	(1) Number of active projects and (2) backlog in countries that have the 20 lowest rankings in Transparency International's Corruption Perception Index	As of the end of 2021, no projects were from countries that have the 20 lowest rankings in Transparency International's Corruption Perception Index.	
	IF-EN-510b.2	Quantitative	Total amount of monetary losses as a result of legal proceedings associated with charges of (1) bribery or corruption and (2) anticompetitive practices	As of the end of 2021, no charges of (1) bribery or corruption and (2) anticompetitive practices were incurred.	
	IF-EN-510b.3	Qualitative	Description of policies and practices for prevention of (1) bribery and corruption, and (2) anti-competitive behavior in the project bidding processes	On May 20, 2021, the Fair Trade Compliance Program (CP) was introduced for fair and transparent corporate management. A CP operation regulation was established by the Fair Trade Compliance Program. The regulation specifies compliance policies for fair trade-related laws and regulations in all business activities such as bidding and trading, stipulates sanctions for violations. In order to make employees aware of fair trade and the code of ethics accurately, we are asking for a pledge of ethical management and fair trade practice.	76p
Activity Metrics	IF-EN-000.A	Quantitative	Number of active projects	As of the end of March 2022, 126 domestic sites and 13 overseas sites are in progress.	
	IF-EN-000.B	Quantitative	Number of commissioned projects	As of the end of December 2021, 38 domestic sites and 1 overseas site were completed.	
	IF-EN-000.C	Quantitative	Total backlog	As of the end of December 2021, total backlog is KRW 48.623 trillion (based on consolidation): KRW 30.6114 trillion in construction and housing, KRW 6.7016 trillion in infrastructure, KRW 1.7084 trillion in plant, KRW 9.6016 trillion in new business.	

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TCFD

	TCFD Recommendations	Page	CDP
Governance	Describe the board's oversight of climate-related risks and opportunities	33p	C1.1, C1.1a, C1.1b
	Describe management's role in assessing and managing climate-related risks and opportunities.	33p	C1.2, C1.2a
Strategy	Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	34p	C2.3a, C2.4a
	Describe the impact of climate related risks and opportunities on the organization's businesses, strategy, and financial planning.	34p	C3.4
	Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	34p	C3.2, C3.2a
Risk Management	Describe the organization's processes for identifying and assessing climate-related risks	35~36p	C2.1, C2.2
	Describe the organization's processes for managing climate-related risks.	35~36p	
	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	35~36p	
Metrics and Targets	Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	37~38p	C2.1b, C3.3
	Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	37~38p	C6.1, C6.3, C6.5
	Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	37~38p	C4.1, C4.1a, 4.2, 4.3, C4.1b

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Classification	Principle	Page	GRI Standards
Governance	This integrated report (IR) describes the discussions at the level of the CEO and the BOD regarding the strategic aspects of the implementation of the UNGC.	5p	102-14
	This IR explains the company's decision-making processes and corporate governance to achieve its sustainability.	71~73p	102-18, 21
	This IR describes the engagement of all of the company's major stakeholders.	22p	102-43
UN Goals and Issues	This IR describes activities designed to support comprehensive goals and issue of the United Nations.	5p	102-12
Human Rights	This IR describes the company's strong commitment, strategies and policies in the area of human rights.	53p	103-1
	This IR describes an effective management system designed to integrate its human rights principles.	53p	103-2
	This IR describes effective monitoring and evaluation mechanisms about human rights principles.	53p	412-2
	This IR applies standardized performance indices (including GRI) about human rights.	91~92p	405-1
Labor	This IR describes the company's strong commitment, strategies and policies in the area of labor.	43p, 57p	103-1
	This IR describes an effective management system designed to integrate its labor principles.	43p, 57p	103-2
	This IR describes effective monitoring and evaluation mechanisms about labor principles.	42~46p, 57p	103-3
	This IR applies standardized performance indices (including GRI) about labor.	91~92p	402-1, 403-2, 405-1
Environment	This IR describes the company's strong commitment, strategies and policies in the area of environmental management.	25p	103-1
	This IR describes an effective management system designed to integrate its environmental principles.	25p	103-2
	This IR describes effective monitoring and evaluation mechanisms about environmental management.	29~31p	103-3
	This IR applies standardized performance indices about environmental management.	91~92p	302-1, 306-2, 307-1
Anti-corruption	This IR describes the company's strong commitment, strategies and policies in the area of anti-corruption efforts.	75~78p	103-1
	This IR describes an effective management system designed to integrate its anti-corruption principles.	75~78p	103-2
	This IR describes effective monitoring and evaluation mechanisms in the area of anti-corruption efforts.	76~77p	205-2
	This IR applies standardized performance indices about anti-corruption efforts.	91~92p	205-2
Strategies, Governance and Engagement	This IR explains about the implementation of Global Compact Principles within the company's value chain.	5p	-
Assurance and Transparency	This IR offers information on the corporate profile and operational environments.	2~12p	102-1~10
	This IR includes a high level of transparency and disclosure.	2p	102-50~56

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Independent Assurance Statement

To readers of GS E&C Integrated Report 2022

Introduction

Korea Management Registrar (KMR) was commissioned by GS Engineering & Construction (GS E&C) to conduct an independent assurance of its Integrated Report 2022 (the “Report”). The data and its presentation in the Report is the sole responsibility of the management of GS E&C. KMR’s responsibility is to perform an assurance engagement as agreed upon in our agreement with GS E&C and issue an assurance statement.

Scope and Standards

GS E&C described its sustainability performance and activities in the Report. Our Assurance Team carried out an assurance engagement in accordance with the AA1000AS v3 and KMR’s assurance standard SRV1000. We are providing a Type 2, moderate level assurance. We evaluated the adherence to the AA1000AP (2018) principles of inclusivity, materiality, responsiveness and impact, and the reliability of the information and data provided using the Global Reporting Initiative (GRI) Index provided below. The opinion expressed in the Assurance Statement has been formed at the materiality of the professional judgment of our Assurance Team.

Confirmation that the Report was prepared in accordance with the Core Options of the GRI standards was included in the scope of the assurance. We have reviewed the topic-specific disclosures of standards which were identified in the materiality assessment process. We also confirmed that the report was prepared in accordance with the TCFD recommendations and SASB.

- GRI Sustainability Reporting Standards
 - Universal standards
 - Topic specific standards
 - Management approach of Topic Specific Standards
 - GRI 201: Economic Performance
 - GRI 205: Anti-Corruption
 - GRI 302: Energy
 - GRI 303: Water and Effluents
 - GRI 305: Emissions
 - GRI 306: Effluents and Waste
 - GRI 403: Occupational Health and Safety
 - GRI 412: Human Rights Assessment
- SASB Sustainability Disclosure Topics & Accounting Metrics
- TCFD recommendations

As for the reporting boundary, the engagement excludes the data and information of GS E&C’s partners, suppliers and any third parties.

KMR’s Approach

To perform an assurance engagement within an agreed scope of assessment using the standards outlined above, our Assurance Team undertook the following activities as part of the engagement:

- reviewed the overall Report;
- reviewed materiality assessment methodology and the assessment report;
- evaluated sustainability strategies, performance data management system, and processes;
- interviewed people in charge of preparing the Report;
- reviewed the reliability of the Report’s performance data and conducted data sampling;
- assessed the reliability of information using independent external sources such as Financial Supervisory Service’s DART and public databases.

Limitations and Recommendations

KMR’s assurance engagement is based on the assumption that the data and information provided by GS E&C to us as part of our review are provided in good faith. Limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization were applied. To address this, we referred to independent external sources such as DART and National Greenhouse Gas Management System (NGMS) and public databases to challenge the quality and reliability of the information provided.



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Conclusion and Opinion

Based on the document reviews and interviews, we had several discussions with GS E&C on the revision of the Report. We reviewed the Report's final version in order to make sure that our recommendations for improvement and revision have been reflected. Based on the work performed, it is our opinion that the Report applied the Core Option of the GRI Standards. Nothing comes to our attention to suggest that the Report was not prepared in accordance with the AA1000AP (2018) principles.

Inclusivity

GS E&C has developed and maintained different stakeholder communication channels at all levels to announce and fulfill its responsibilities to the stakeholders. Nothing comes to our attention to suggest that there is a key stakeholder group left out in the process. The organization makes efforts to properly reflect opinions and expectations into its strategies.

Materiality

GS E&C has a unique materiality assessment process to decide the impact of issues identified on its sustainability performance. We have not found any material topics left out in the process.

Responsiveness

GS E&C prioritized material issues to provide a comprehensive, balanced report of performance, responses, and future plans regarding them. We did not find anything to suggest that data and information disclosed in the Report do not give a fair representation of GS E&C's actions.

Impact

GS E&C identifies and monitors the direct and indirect impacts of material topics found through the materiality assessment, and quantifies such impacts as much as possible.

Reliability of Specific Sustainability Performance Information

In addition to the adherence to AA1000AP (2018) principles, we have assessed the reliability of economic, environmental, and social performance data related to sustainability performance. We interviewed the in-charge persons and reviewed information on a sampling basis and supporting documents as well as external sources and public databases to confirm that the disclosed data is reliable. Any intentional error or misstatement is not noted from the data and information disclosed in the Report.

Competence and Independence

KMR maintains a comprehensive system of quality control including documented policies and procedures in accordance with ISO/IEC 17021-2015-Requirements for bodies providing audit and certification of management systems. This engagement was carried out by an independent team of sustainability assurance professionals. KMR has no other contract with GS E&C and did not provide any services to GS E&C that could compromise the independence of our work.

July 2022
Seoul, Korea



CEO *E. J. Hwang*

Sustainable Development Beyond Growth

GS E&C Integrated Report 2022

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Additional information about GS E&C can be found on the website. For more details, please contact us at the contact information below.

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GHG Verification Summary

Introduction

KSA Certification, Ltd was commissioned by GS E&C Corporation. ("GS E&C") to verify the domestic GS E&C's Direct emissions (Scope 1 emissions) & Indirect emission (Scope 2 emissions) of Greenhouse Gas Inventory Report for the calendar year 2021 ("the report") based upon a reasonable level of assurance, to verify the overseas GS E&C's emissions (Scope1,2,3 emissions) & domestic GS E&C's Other indirect emissions (Scope3) of Greenhouse Gas Inventory Report for the calendar year 2021 ("the report") based upon a limited level of assurance GS E&C is responsible for the preparation of the GHG emissions data on the basis set out within the WRI/WBCSD GHG protocol: 2004 and the principles set out in ISO 14064-1:2006. Our responsibility in performing this work is to the management of GS E&C only and in accordance with terms of reference agreed with them. KSA expressly disclaims any liability or responsibility for any decisions, whether investment or otherwise, based upon this assurance statement.

Scope of Assurance

The emissions data covered by our examination comprise Direct emissions (Scope 1 emissions), Indirect emission (Scope 2 emissions) and Other indirect emissions(Scope3) :

- Reporting period under verification: Calendar Year 2021
- Organizational boundary for reporting:

Organizational Boundary	Number of Sites / Buildings	Verification activity
Buildings	11 buildings : Gran Seoul, Elysian Resort etc.	Desk Review, Site visit, Activity data verification
Domestic construction sites	142 sites : in dept. of Architecture, Infra, Plant business division	Desk Review, Site visit, Activity data verification
Overseas construction sites	10 sites : in dept. of Architecture, Infra, Plant business division	Desk Review, Activity data verification

Verification Approach

The verification has been conducted by KSA from 25th Feb. through 25th Apr. 2022 and performed in accordance with the verification principles and tasks outlined in ISO 14064-3:2006, IPCC Guideline : 1996/2006, Greenhouse Gas and Energy Management Scheme Guideline : 2021-47. We planned and performed our work so as to obtain all the necessary information and explanations to provide us with sufficient evidence to suggest a limited verification opinion concerning the completeness of the emission inventory as well as the reported emission figures in ton CO₂ equivalent. As part of the verification process :

- We have reviewed and verified the GS E&C's 'Green Information Management System'
- We have reviewed the GHG Inventory Report
- We have reviewed and verified process to generate, aggregate and report the emissions data

Conclusions

As a result of the work described above, in our opinion nothing has come to our attention that would cause us to believe that the GHG Emissions data set out in GS E&C's for the year 2021 were confirmed as below;

Greenhouse Gas Emissions of GS E&C Corporation in 2021

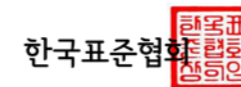
(unit: ton-CO₂ equivalent)

Organizational Boundary	Direct emissions (Scope 1)	Indirect emissions (Scope 2)	Other indirect emissions (Scope 3)	Total emissions
Domestic	31,570	63,524	60,522	155,616
Overseas	14,754	2,314	52,886	69,954
Total emissions	46,324	65,838	113,408	225,570

※ In order to report the GHG emissions as an integer, the rounded number on the statement might be different from the number on the system with ± 1.0 tCO₂
 ※ Total emissions = scope 1 + scope 2 +scope 3
 ※ Scope3 emissions boundary : Business trip(domestic & international), Heavy equipment

Apr 25, 2022

KOREAN STANDARDS ASSOCIATION



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Membership

Membership Status

Division	Name of Association
Plant	Korea Plant Engineering Association, International Contractors Association of Korea, Korea Institute of Plant Engineering & Construction, Korea Plant Industries Association, Korea PDS, AACE International, Gasification Technology Council, IRCA (International Register of Certificated Auditors), Korea Gas Union, Korean Society for Fluid Machinery,
Eco	Korea Wind Energy Industry Association, Korea Atomic Energy Industry Association (KAIF), Korea Nuclear Export Industry Association (KNA), Korean Society of Water and Wastewater, Korean Society of Environmental Engineers, Korean Society on Water Quality, Korean Society of Combustion, Korean Organic Resource Recycling Association, Korea Fluid Mechanical Society, Korea Mechanical Society, Korea Electrical Contractors Association, International Contractors Association of Korea, Korea Electrical Engineers Association
Infrastructure	Korean Society of Transportation, Korea Urban Railway Association, Korea Water Resources Association, Korean National Committee on Large Dams, Korean Geosynthetic Society, Korea Society of Road Engineers, Korea Road Association, Korean Society of Coastal and Ocean Engineers, Korea Ports & Harbours Association, Korean Society of Coastal Disaster Prevention, Korean National Committee on Irrigation and Drainage, The Korea Railway Association, Korean Society for Railway, Korean Railway Construction Association, Korea Rail Engineering Association, Korean Society of Civil Engineering, Korean Geotechnical Society, Korean Society for Rock Mechanics, Korean Tunneling and Underground Space Association, Korea Concrete Institute, Korean Society of Steel Construction, Korea Society of Disaster & Security, The Construction Management Association of Korea, Korea ITS Society
Architecture · Housing	Korean Institute of Illuminating and Electrical Installation Engineers, Korea Institute of Construction Engineering and Management, Korea Institute of Building Construction, The Society of Air-conditioning and Refrigerating Engineers of Korea, Korea Green Building Council, Korean Association of Air Conditioning Refrigerating and Sanitary Engineers, Korea Air Cleaning Association, Korean Association for Energy Service Companies Korean Institute of BIM, Korean Association for Ecological Restoration, Korea Institute of Ecological Architecture and Environment, Korean Institute of Landscape Architecture, Korea Housing Association, Korea Remodeling Association, Architectural Institute of Korea, Korean Association for Real Estate Development, Korean Architectural Society, Korean Interior Design Society, Korean Traditional Landscape Society
RIF Tech	Korea Industrial Technology Association, Korea Construction and Transportation Association, Computational Structural Engineering Institute of Korea, Korean Society for Noise and Vibration Engineering, Building SMART Korea, Korea Road Association, Korean Geo-environmental Society
New Business	K-CCUS, Korea H2 Business Summit, Korea Financial Investment Association, Korea Data Center Energy Efficiency Association (KDCEA), Korea Construction Association, Korea Construction Engineers Association, Professional Construction Association, Korea Professional Construction Mutual Aid Association, Korea Construction Mutual Aid Association, Korea Engineering Mutual Aid Association, Korea Professional Construction Mutual Aid Association, Korea Electrical Construction Mutual Aid Association, Korea Fire Safety Institute
Others	Korea Business Council for Sustainable Development, Korea Federation of Construction Contractors, UN Global Compact Network Korea, The Federation of Korean Industries, Korea Chamber of Commerce and Industry, Korea IR Service, Korea Listed Company Association, Seoul Patent Attorney Association, American Bar Association, Competition Federation, KOSHA18001 Society, Construction Safety Manager Committee, Construction Safety Manager Association, Korea Society for Construction Quality, Korea Construction Quality Association, The Society for Environmental Construction, Construction Association of Korea, Korea Construction Engineers Association, Korea Specialty Contractors Association, Korea New & Renewable Energy Association, Korea Fire Construction Association, Korea Facilities Maintenance Association, Korea Mechanical Construction Contractors Association, Korea Electrical Contractors Association, Korea Information Communication Contractors Association, Korean Society for Human Resource Development, Korea Organization Management Development Association, Korea International Trade Association, Construction & Economy Research Institute of Korea, Korea CFO Association, National Academy Engineering of Korea

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2021 Awards

No.	Date	Name of awards	Name of prize	Host
1	January 28	2021 Korea First Brand Awards	Best Plant	Korea Consumer Branding Commission
2	March 23	2021 Money Today Overseas Construction Awards	Best Civil Engineering	Money Today
3	March 25	Grand Prize in Large companies and SMEs Partnership	Award from the Ministry of SMEs and Startups	Bridge Economy
4	March 29	2021 Korea Best Brand Awards	Grand Prize in Apartment	Korea Business News
5	-	Red Dot Design Award	Red Dot Winner	Red Dot
6	May 26	2021 Korea Residential Service Awards	Best community	Money Today
7	-	2021 Best Apartment Awards	Power Brand	Asian Economy
8	June 4	Best Apartment Awards	Grand Prize	Hankyung TV
9	June 20	2021 Wellbeing Apartment Awards	Grand Prize in brand	Hankyung Business
10	July 7	Hankyung Residential Culture Awards in the first half of 2021	Grand Prize in wellbeing Apartment	Korea Business News
11	-	2021 Korean Land Contest	Award from the Minister of Land, Infrastructure and Transport	Financial News
12	-	2021 Smart Construction Awards	Grand Prize in Safety Technology	DNEWS
13	-	2021 Green Construction Industry Awards	Smart Apartment Prize	JoongAng Ilbo
14	-	2021 Eco-friendly Residential Awards	Award from the Minister of Environment	Energy Economy
15	-	Korea Luxury Housing	Best Green Awards	Money Today
16	-	16th Asia Construction Grand Prize	Commendation from the Seoul Metropolitan City Mayor	Asian Economy
17	-	2021 Korean Land Contest	Award from the Ministry of Land, Infrastructure and Transport	Financial News
18	-	Honorable Mention	Honorable Mention	2021 Landscape Awards
19	-	1st Seoul Universal Design Awards	Best Private Award	Seoul Metropolitan Office
20	-	21st Natural Environment Awards	Excellence award	Korea Ecological Restoration Association
21	November 18	2021 Smart Construction Awards	Grand Prize in Landscape	E-today
22	November 30	2021 Green Housing Awards	Grand Prize in Green Community	Hankook Ilbo
23	December 1	21st Korea Green Construction Awards	Eco-friendly green management in ESG era	Seoul Shinmun
24	December 3	Dream House 2021	Prize from the Seoul Metropolitan City Mayor	The Herald Business
25	December 3	Hankyung Residential Culture Awards in the second half of 2021	Grand Prize in Well-being Apartment	Korea Business News
26	December 14	Grand Prize in Construction	Excellence Prize in Residential Architecture	Maeil Business Newspaper
27	-	9th E-Daily Construction Industry Awards	Grand Prize in ESG	E-daily

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