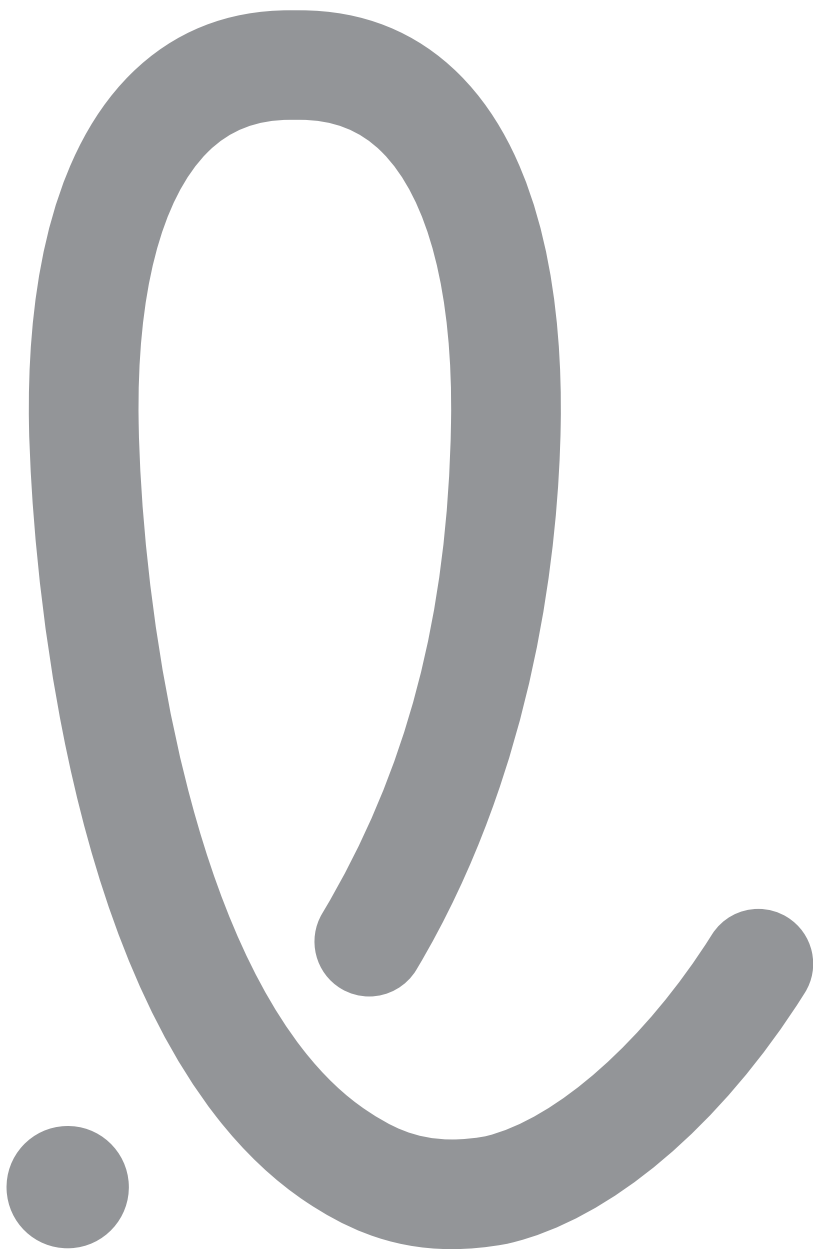




Sustainability Report

LOTTE Engineering & Construction 2020



LOTTE E&C

About This Report

Features of the Report

LOTTE E&C has been publishing a Sustainability Report every year since 2013 as a means of transparently disclosing its sustainability management activities and performance results to its stakeholders. This report links LOTTE E&C's strategies to sustainability management strategies and covers activities in support of the UN Sustainable Development Goals (SDGs), expressing the company's commitment to and endeavors in support of growth with local communities as a corporate citizen.

Reporting Period and Scope

This report covers the company's financial and non-financial activities and performances from January 1 to December 31, 2019. For some material issues, information from the past up to July 2020 has been included to help with the readers' understanding. With regard to quantitative data, performance over the past three years is reported for comparison purposes.

As for the scope, this report covers our 260 domestic sites, including the head office and the Construction Management (CM) Division. In case of some significant data, activities in overseas sites have been included as well. There has been no significant change to the size and structure of the organization in 2019, and all modifications to the reported contents have been specified with notes on the relevant page.

Reporting Standards

This report has been prepared in accordance with the Core Option¹⁾ suggested by the GRI (Global Reporting Initiative) Standards. The issues reported herein have been selected based on materiality tests conducted with the stakeholders, and some major issues on global industry trends have also been selected and included.

1) One of the methods used to prepare the sustainability report, dealing with an organization's economic, environmental, and social impacts and governance performance.

Reporting Assurance

This report was assured independently by a third-party entity to ensure the level of credibility and reliability. Related information on reporting assurance is described on pages 105-106 of this report.

Contact Us

This report can be downloaded at LOTTE E&C's website (<http://www.lotte-con.co.kr/eng>); please contact the following for any inquiries:

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2020 Cover Story

The front cover emphasizes the Value Line (L, V, C) which comprises the Vision of LOTTE Group, 'Lifetime Value Creator', and also displays the commitment of LOTTE Engineering & Construction to grow sustainably until its 100th anniversary.

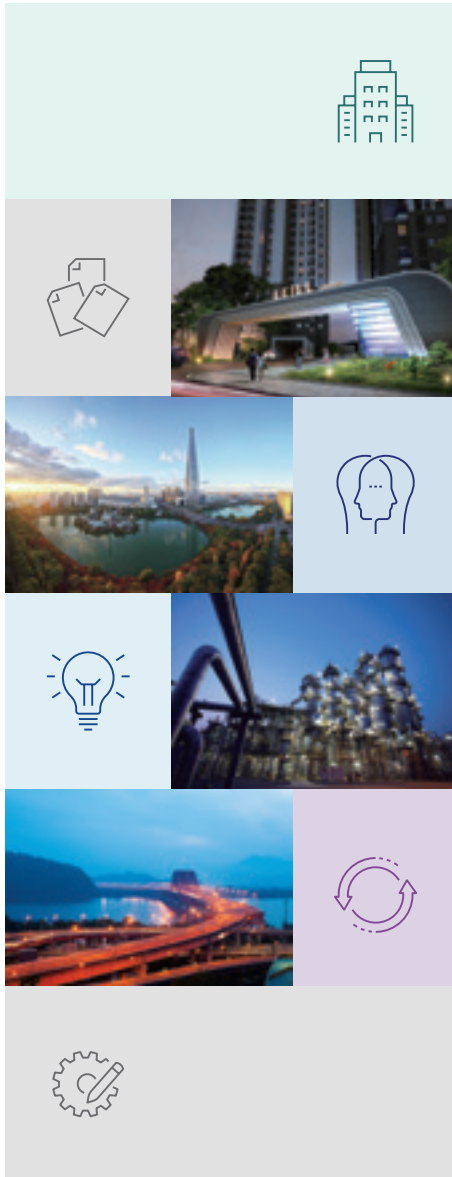
Note on Exchange Rates

The monetary numbers in this report were initially expressed in Korean Won (KRW). In this English version of the same report, the following exchange rates have been used to convert KRW into United States Dollars (USD);

- Past three-year performances (2017 to 2019):
Yearly KRW-USD average exchange rate for the respective years
- Legal standards: KRW-USD average exchange rate for the year 2019 (for comparison purposes)

* Year 2017: 1 USD = 1,130.84 KRW
* Year 2018: 1 USD = 1,100.30 KRW
* Year 2019: 1 USD = 1,165.65 KRW

Contents



Overview	01 About This Report
	03 Message from the CEO
	05 Company Overview
	07 Corporate Governance
	08 Risk Management

Beyond Customer Expectation	11 HOUSING
	17 BUILDING
	27 PLANTS
	33 INFRASTRUCTURE
	39 GLOBAL

Challenge	49 Sustainability Management Strategies and System
	51 Strategic Response to Mega Trends in the Construction Industry
	52 Stakeholders' Participation and Materiality Assessment
	53 Sustainable Development Goals (SDGs)

Respect	57 Ethical Management based on Principles and Trust
	61 Establishment of Compliance
	63 Creating a Safety-First Corporate Culture
	67 Efforts for Clean Future by Eco-Friendly Approach
	71 Creating Future Value through Technological Development
	75 Achieving Customer Satisfaction
	81 Win-Win Cooperation Partnership
	85 Value Creation for the Local Community through Social Contributions
	87 People-Oriented Business

Originality	95 Key Performance in Sustainability Management
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Appendix	102 GRI Standards Index
	105 Third Party's Assurance Statement
	107 Memberships in Associations / Awards

Message from the CEO



“ LOTTE E&C promise to provide better services, to develop sustainably with your support and trust through creating social value, and to be a corporate citizen abiding by basic principle. ”

Dear Valued Customers and Stakeholders,

As a member of the LOTTE GROUP, LOTTE E&C has incorporated into the basic principles of its business activities the group's mission of 'We enrich people's lives by providing superior products and services that our customers love and trust' and vision of 'Lifetime Value Creator'. Based on such mission and vision, LOTTE E&C is improving the value of life in various areas worldwide and striving to achieve sustainable growth.

LOTTE E&C is engaged in the businesses of housing, building, plants, and civil works in both domestic and overseas markets. In order to meet the needs of different customers at home and abroad, such as public and private sectors, LOTTE E&C is leveraging its unique competitive strengths across the entire product life cycle. This encompasses feasibility studies at the initial stage, business plan development, design, procurement, construction, project management, management of facilities after completion, financing and developmental projects involving direct equity investments.

LOTTE E&C is improving the technology, quality, and services level of its key products such as : the LOTTE Castle, South Korea's first high-end apartment brand launched in 1999, super high-rise buildings like the LOTTE World Tower, multipurpose and retail facilities, petrochemical and power plants, and ground transportation works including long-span bridges and tunnels.

Along with these efforts, management performance of orders and sales has been continuously improving. In 2020, however, the business environment at domestic and abroad is becoming difficult due to the influence of COVID-19.

In order to respond proactively to the rapidly changing business environment, in 2018, we formed a task force to establish a mid- to long-term strategy for the future. In 2019, through the process of redefining mid- to long-term strategies at the LOTTE Group level, we supplemented the established strategies to proclaim the vision and mid- to long-term strategies in 2030, and are striving to improve our executive ability.

LOTTE E&C's Vision 2030 is 'Global Leading EPC Contractor, Total Service Provider'. It may sound simple, but it clearly defines a construction company's direction in the changes of global mega trends, markets, and customer needs.

The new mid to long-term strategy includes setting overseas businesses, including investment development projects and petrochemical plants as new areas of growth, searching for promising opportunities in the midst of urbanization and digital transformation, and enhancing risk management strategies in the overall management.

LOTTE E&C recognizes the importance of contributing to the creation of a sustainable society while carrying out its business activities.

In order to achieve this objective, LOTTE E&C continuously trying to strengthen compliance, prevent safety accidents, enhance global competitiveness, utilize eco-friendly construction to respond to environmental issues, manage human talent, co-exist with partner companies and fulfill corporate social responsibilities by helping the disadvantaged.

To all our customers and stakeholders who have given their support and love to make LOTTE E&C what it is today, we would like to extend our sincerest gratitude. By providing better services to customers and creating social value, LOTTE Engineering & Construction will continue to grow as a much loved and trusted company. We promise to do our best to fulfill our role as a corporate citizen that adheres to fundamentals and principles.

July 2020

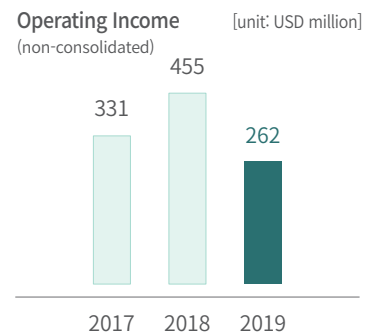
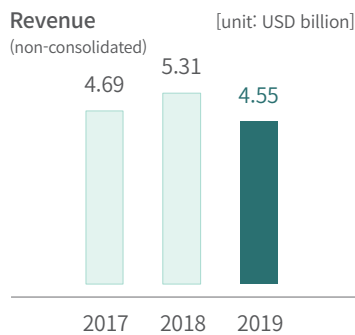
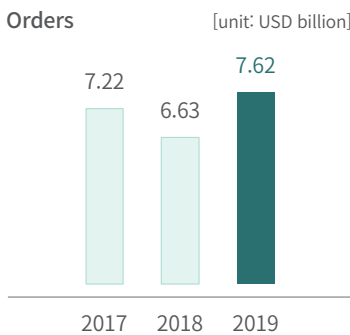
President and CEO **Suk Joo Ha**

HA. Suk Joo

Company Overview

Founded in 1959, LOTTE E&C contributes to enriching people's lives by providing superior products and services that our customers love and trust, and it has been working to become a company that grows together with society through principles and fundamentals, mutual growth, and sharing. In 2019, LOTTE E&C marks its 60th anniversary. LOTTE E&C is enhancing its capabilities by providing services across the entire value chain to help it grow into a global construction company. Additionally, as we seek to create a better future, we have established our Vision 2030, and are pursuing a phase-by-phase implementation strategy.

Company Name	LOTTE Engineering & Construction Co., Ltd. (LOTTE E&C)	Orders (2019)	USD 7.62 billion (Backlog of orders: USD 25.01 billion)
Date of Establishment	February 3, 1959 (Acquired by the LOTTE Group in 1978)	Revenue (2019)	USD 4.56 billion (Consolidated) *USD 4.55 billion (Non-consolidated)
President and CEO	Suk Joo Ha (Inaugurated in March 2017)	Operating Income (2019)	USD 262 million (Consolidated) *USD 263 million (Non-consolidated)
Head Office	29, Jamwon-ro 14-gil, Seocho-gu, Seoul, Korea	Credit Rating	A+ for corporate bonds from the Korea Investor's Service (As of Dec. 2019)
Key Businesses	Housing, building, plants and infrastructure		
Major Shareholder	LOTTE Chemical Corporation (43.79% stake)		
Number of Employees	3,360 employees (As of December 31, 2019)		
Branches / Subsidiaries	1 domestic branch, 6 overseas branches / 5 overseas subsidiaries		



LOTTE GROUP Vision

Lifetime Value Creator

LOTTE E&C Vision 2030

Global Leading EPC Contractor, Total Service Provider

LOTTE E&C's 2020 Slogan

2020! The year we pioneer the future market through solid internal growth!

History

1959~1977

Foundation

1959. 02

Established Pyong Hwa Construction, Inc.

1977. 10

Acquired an overseas construction business license (No. 34 from the Ministry of Construction)

1978~1997

LOTTE Group's Acquisition and Business Structure Reorganization

1978. 09

Management right acquired by the LOTTE Group

1986. 09

Established the LOTTE E&C Technology Research Institute

1990. 02

Completed construction of Jamsil LOTTE World

1998~2003

External Growth and Brand Management

1999. 03

Launched the LOTTE Castle brand (Sales initiated for Seocho LOTTE Castle 84)

2000. 11

Established the Ethics Secretariat

2002. 05

Received the grand prize at the Korea Service Grand Prix (Apartment housing category) from the Korean Standards Association

2003. 07

Ranked 8th in the Construction Capability Evaluation by the Construction Association of Korea (Entered the top 10 for the first time)

2004~2013

Introduction and Implementation of the Corporate Vision

2005. 10

Established Vision 2010

2009. 02

Acquired LOTTE E&M's construction business division

2009. 09

Established Vision 2015

2012. 11

Launched the CSR Committee (The name changed to the Sustainability Council)

2012. 12

Established Vision 2018

2013. 07

Published the first Sustainability Report

2014~Present

Changes and Challenges for the Future

2015. 04

Re-established the brand identity of LOTTE Castle

2016. 01

Established the Rental Housing Business Department and initiated the asset management business

2017. 04

50th anniversary of the LOTTE Group, Opened LOTTE World Tower

2018. 07

Established the Singapore branch office

2019. 02

Established subsidiaries for overseas investment development project (LOTTE Land Vietnam, Indonesia)

2019. 07

Established Vision 2030, Won the Grand Prize in the Korea Service Grand Prix for 18 consecutive years

2019. 09

60th anniversary of LOTTE E&C (September 15th)

2019. 11

Launched LE EL, high-end housing brand

Contact Information of Overseas Branches and Subsidiaries

01

Branch Office, Indonesia

The Energy Building 23rd Floor,
Jl. Jend Sudirman Kav
52-53, Jakarta Selatan 12190,
Indonesia
+62-21-5060-7257~8

02

LOTTE LAND, Indonesia

Treasury Tower, Lt.12, Jl. Jend.
Sudirman, Kav. 52-54, Senayan,
Kebayoran Baru, Jakarta
Selatan, 12190
+62-21-5060-7257~8

03

Representative Office, Vietnam (Hanoi Office)

Room 3102A, 31st Floor, LOTTE
Center Hanoi, 54 Lieu Giai
Street(Cong Vi Ward), Ba Dinh
District, Hanoi City, Vietnam
+84-243-2676-123

04

Representative Office, Vietnam (Ho Chi Minh Office)

Room 605C, 6th Floor, Diamond
Plaza Building 34 Le Duan,
District 1, Ho Chi Minh, Vietnam
+84-283-8233-481

05

LOTTE LAND, Vietnam

Room 703, 7th floor, Diamond
Plaza Building 34 Le Duan,
District 1, Ho Chi Minh, Viet Nam
+84-283-8233-481

06

Branch Office, Japan

TS Building 8F, Kudankita
4-3-32, Chiyoda District, Tokyo,
Japan(Postal Code : 102-0073)
+81-3-5357-1728

07

Branch Office, Moscow, Russia

10th floor, Profsoyuznaya Street,
65, Build.1, Moscow, Russia
+7-495-280-3396

08

LOTTE E&C Beijing Co., Ltd. (China)

Room 601, Guohang Building,
No.36, Xiaoyun Road, Chaoyang
District, Beijing, China
(Postal Code: 100027)
+86-10-8447-5106

09

Branch Office, Pakistan

House No.2, Street No.18, F-7/2,
Islamabad, Pakistan
(Postal Code: 44000)
+92-51-843-5288

10

Branch Office, Singapore

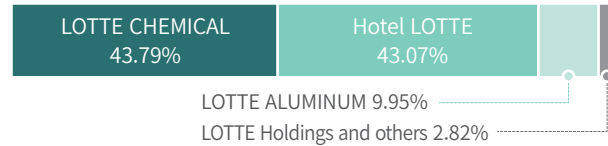
#33-03A, Suntec Tower
1, 7 Temasek Boulevard,
Singapore(Postal Code : 038937)
+65-6264-0114

Corporate Governance

Corporate Governance

As of March, 2020, LOTTE Chemical was the largest shareholder of LOTTE E&C, with a 43.79 % stake. Including affiliated persons, shareholders own 99.63% of the company.

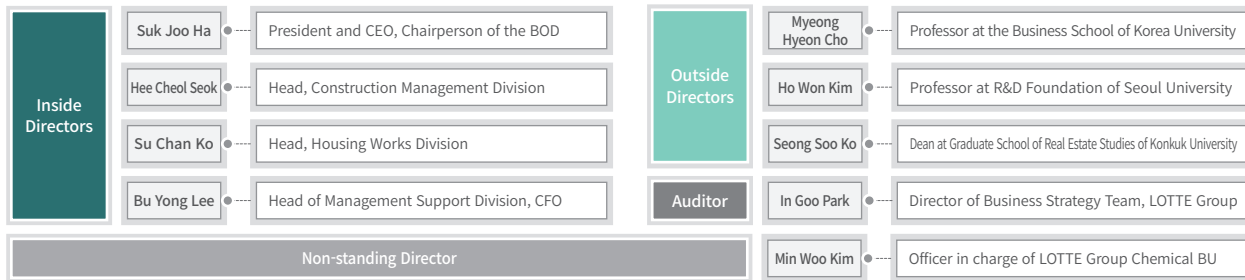
Largest shareholder and affiliated persons Total 99.63%



Operation and Composition of the BOD

LOTTE E&C’s top decision-making body is the BOD (Board of Directors), which is composed of four inside directors and three outside directors (As of March, 2020). Directors are elected at the General Shareholders’ Meeting in accordance with the Articles of Association. Regular BOD meetings are held quarterly, and special meetings are convened as needed. In 2019, a total of 10 BOD meetings were held, and members voted on 30 agenda items.

Composition of the BOD and Auditor (as of March 2020)



Evaluation and Reward

The financial and non-financial performances of the management are evaluated and yearly salaries and incentives are determined accordingly. Remuneration is within the limit approved at the General Shareholders’ Meeting. In 2019, the total compensation for directors (including non-registered executives) approved at the General Shareholders’ Meeting was USD 25.74 million. USD 4.41 million was paid to registered directors during the year, with USD 0.49 million being the average compensation per individual.

Subcommittees of the BOD

Consisting of four inside directors including the CEO, the Management Committee was set up in 2016 to deliberate and make decisions on issues entrusted to it by the BOD and other general management-related matters. In addition, the Transparent Management Committee, comprising three outside directors and one inside director, reviews private contracts with specially affiliated persons and subsidiary companies for contracts exceeding a certain amount. In 2019, 26 Management Committee meetings were held to decide on 128 issues related to signing loan agreements, subcontract agreements, etc., and a meeting of the Transparent Management Committee’s was convened once to decide on two construction subcontracting agreements with LOTTE Group affiliates. In addition, in September 2019, the Compensation Committee, which is responsible for deliberating and deciding on executive compensation, was established under the Board of Directors, but it did not meet in 2019.

Status of Subcommittee

Management Committee	3 inside directors (including the CEO)	Deliberating and deciding on matters entrusted to it by the BOD and general management matters
Transparent Management Committee	3 outside directors, 1 inside director	Deliberating and deciding on negotiated contractors of a certain scale or higher with affiliated persons and affiliates
Compensation Committee	3 outside directors, 1 inside director	Deliberation and decision-making on remuneration limits for executives, and individual remuneration and performance-based bonuses for registered executives

Auditing

LOTTE E&C appoints one auditor based on the decisions made at the shareholder’s meeting for performing audit operations. The auditor may independently supervise directors’ operations by attending the board meeting and may require all relevant departments to submit documents and records. In addition, the auditor could ask the company to report sales related information and request access to business management information when necessary through appropriate procedures.

Risk Management

LOTTE E&C runs an organization for response and a decision-making system by division by categorizing risks in seven areas, including market, policies, competences, partners, compliance, disasters and projects, and conducts regular monitoring. In particular, under the supervision of the Chief Executive Officer, expected risks are analyzed, countermeasures are devised, and follow-up actions are taken by running a pre/post review process engaged by each business unit.

7 Major Risk Management Plan

7 Major Risks	Description	Risk Management Plan
Market Risks	Possibilities of changing construction industry due to socio-economic factors in both domestic and overseas markets	Periodic quantitative and qualitative market analysis and reflecting them in corporate strategies
Policy Risks	Changes in domestic policies (Bidding, housing, electricity supply and demand) and foreign policies (Bidding, real estate development, investment, etc.)	Frequent analysis on policy/system trends to come up with own measures and recommendations to the government
Competence Risks	Generalization of design & build and EPC contracts among firms as well as a growing number of direct investments including financing arrangements and project financing	Competency enhancement all throughout the value chain such as design engineering, financing capability, and etc.
Partner Risks	Delays in the delivery and abandonment of construction work by partner companies, failure in financial structures / bankruptcy	Discovering excellent partners in domestic and overseas and strengthening cooperative ties
Compliance Risks	Increasing demand for compliance in both domestic and overseas markets	Declaration of the code of conduct to comply with anti-corruption laws and global standards, as well as training of expatriate employees on compliance manuals
Disaster Risks	Increase in IT security threats such as virus attacks and hacking as well as natural disasters including unexpected fire and earthquake, etc.	Acquisition of business continuity by operating the LOTTE group-wide disaster recovery system
Project Risks	Business risks (Including business feasibilities, financing measures, and business timelines in projects), safety accidents, environmental load, etc.	Strengthening of management soundness through strict feasibility review from management-level decision-making process

Enhance Project Risk Management

In the construction industry, risks that may occur in project management can not only impact business performance directly but also tarnish the corporate reputation in the long run. In order to prevent risks, LOTTE E&C operates a decision-making system that includes an organization for responding to project risks, the Deliberation Committee for Project Biddings, and the Deliberation Committee for Investment. Through these decision-making processes, the company has put in place an advanced risk management system for managing business performance aspects like financing and progress status for each project.

Moreover, to enhance the management of risks in overseas projects, which always come with high risks, LOTTE E&C has been operating a rigorous project bid participation review program since 2016. In 2019, the company renovated its ERP system and supplemented its overseas project execution manual in preparation for expanding its overseas businesses for the long term.

Furthermore, for the operation of the construction site, a process was set up to minimize risk factors such as safety accidents, and environmental impacts. In addition, regular/irregular site inspections have been enhanced, and currently the company operates a reporting center and response system in case of emergencies.

LOTTE E&C's Project Risk Management Body



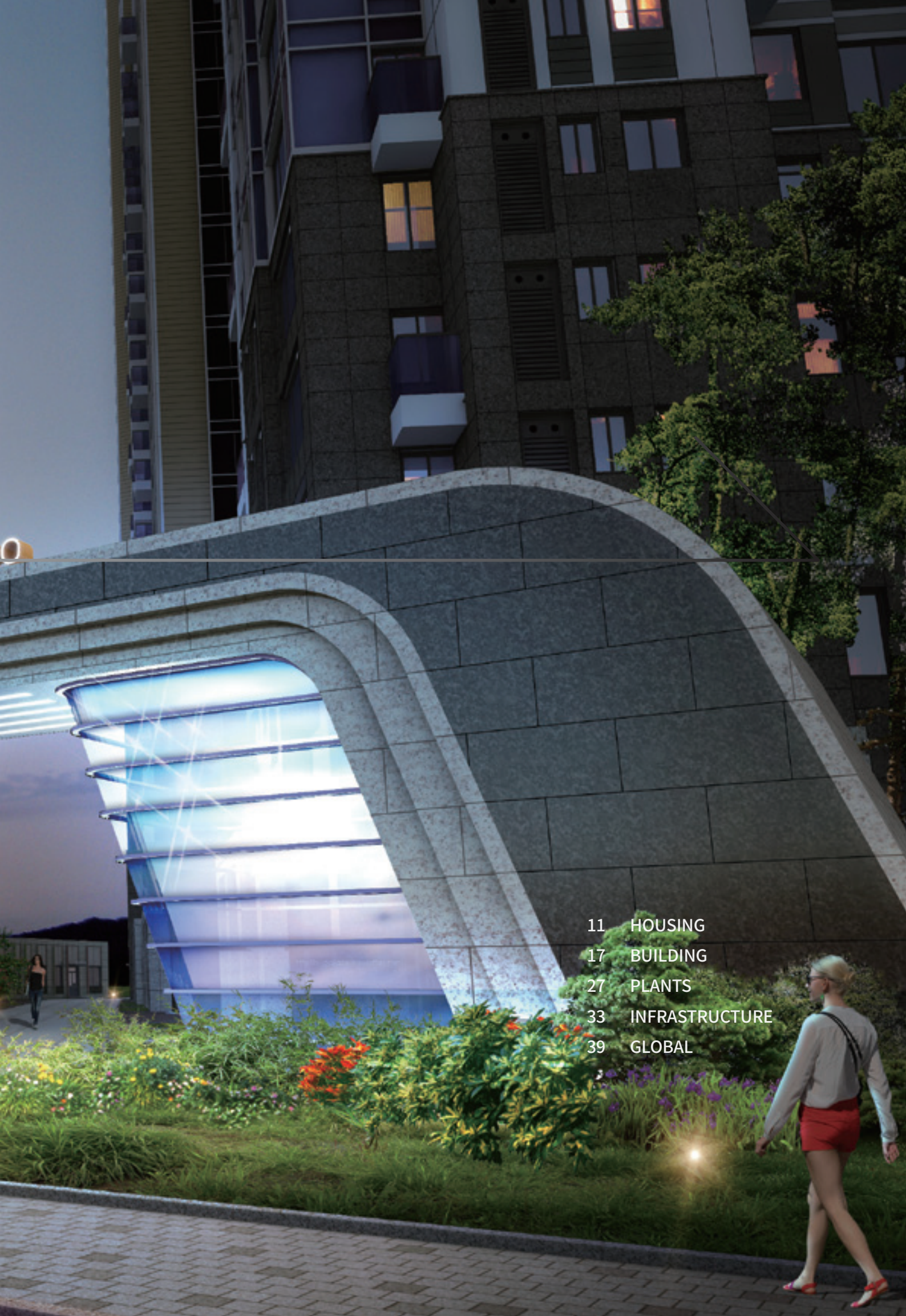
Beyond Customer Expectation

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LOTTE E&C businesses
create values beyond customer expectation

LEIEL SINBAND





- 11 HOUSING
- 17 BUILDING
- 27 PLANTS
- 33 INFRASTRUCTURE
- 39 GLOBAL

HOUSING

In March 1999, LOTTE E&C introduced an apartment housing brand for the first time in the Korean construction market. The ‘Seocho LOTTE Castle 84’ was built in Seocho-gu, Seoul, and we have established our brand identity as ‘Prestige of Life’ and have been leading the housing culture of Korea.

LOTTE Castle is a brand of housing products like apartments, residential, and commercial complexes. We conduct our business in fields such as urban improvement (Redevelopment / Reconstruction), self-financed projects, and others. LOTTE E&C provides satisfaction to our customers by providing unique services and the highest quality on all stages of the business process, starting from preliminary product planning, business analysis, marketing/sales, construction, and post-management.

LOTTE E&C is strengthening product, design, quality, and service competitiveness. With the intention of building a house for our own family, we are constantly striving to provide the best products through product trend analysis.

In order to respond to the paradigm shift in the housing market, we have been operating “Eyes”, an asset management service platform for residents, since 2018. In 2019, we launched LE EL, a high-end housing brand that consolidates our skills to continue the image of the existing Castle and have a timeless value.

Housing Works Strategy

- Reinvent product, design and quality & service
- Expand and strengthen asset management service



Performance

(Based on 2019 data)

- Orders USD **3,721** million
- Revenue USD **2,592** million

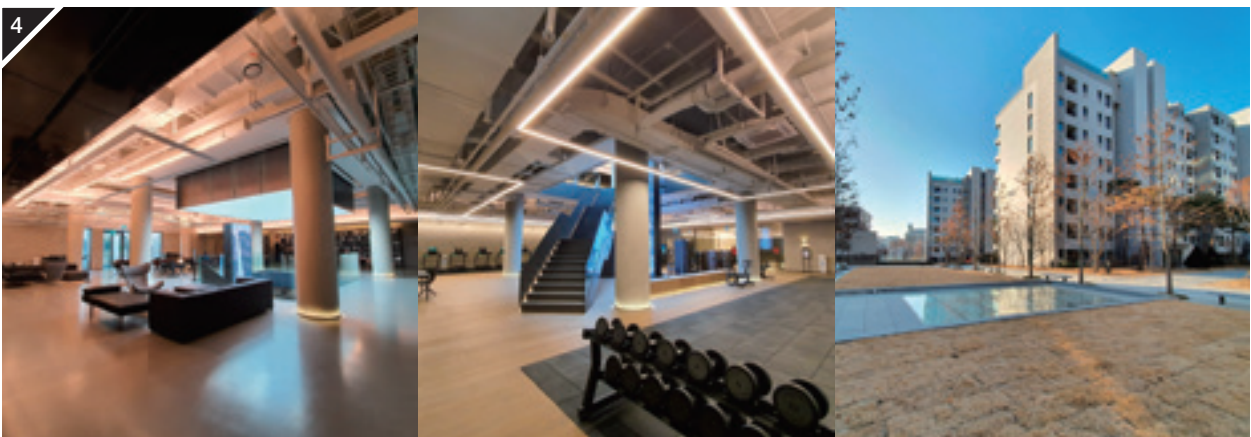
Highlight

- Awarded Korea Service Grand Prix for 19 consecutive years (Jul. 2020)
- Tied for 3rd place in the National Customer Satisfaction Index(NCSI) (Apartment housing part) (Jul. 2019)

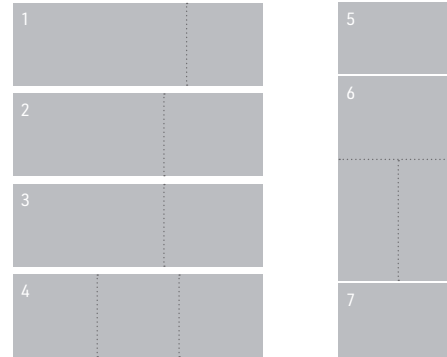
Wonju LOTTE Castle The First Phase 1 & 2 (Oct. 2015 ~ Aug. 2018)

- Location : Wonju, Gangwon-do (Wonju Enterprise City)
- Summary : 2 stories below ground and 30 stories above,
20 buildings and 2,359 units (Phase 1 – 1,243 units;
Phase 2 – 1,116 units)

Apartments · Residential and Commercial Complexes



13
14



1. Yongsan LOTTE Castle Center Foret (Oct. 2016 ~ Apr. 2019)

- Location : Hyochang-dong, Yongsan-gu, Seoul
(Hyochang District 5 Residential Redevelopment)
- Summary : 4 stories below ground and 22 stories above,
7 buildings, 478 units

2. Heukseok New Town LOTTE Castle Edu Foret (May. 2016 ~ Nov. 2018)

- Location : Heukseok-dong, Dongjak-gu, Seoul
(Heukseok 8 District Residential Redevelopment)
- Summary : 4 stories below ground and 23 stories above,
7 buildings, 545 units

3. Sejong LOTTE Castle & Familie the Art (Nov. 2016 ~ Aug. 2019)

- Location : Bangok-ro, Sejong City (Sejong, Living Sphere 4-1)
- Summary : 2 stories below ground and 29 stories above,
16 buildings, 880 units

4. Hannam Nine One (Nov. 2017 ~ Dec. 2019)

- Location : Hannam-dong, Yongsan-gu, Seoul
- Summary : 4 stories below ground and 9 stories above,
9 buildings, 335 units

5. Geumcheon LOTTE Castle Gold Park (Nov. 2013 ~ Mar. 2019)

- Location : Doksan-dong, Geumcheon-gu, Seoul
- Summary : 24 buildings, 4,409 units
(3,271 apartment units and 1,138 studio units)
- Features : New city-level complex consisting of apartments,
studios, business facilities, and hotel

6. LOTTE Castle Beneluca, Godeok (Apr. 2017 ~ Dec. 2019)

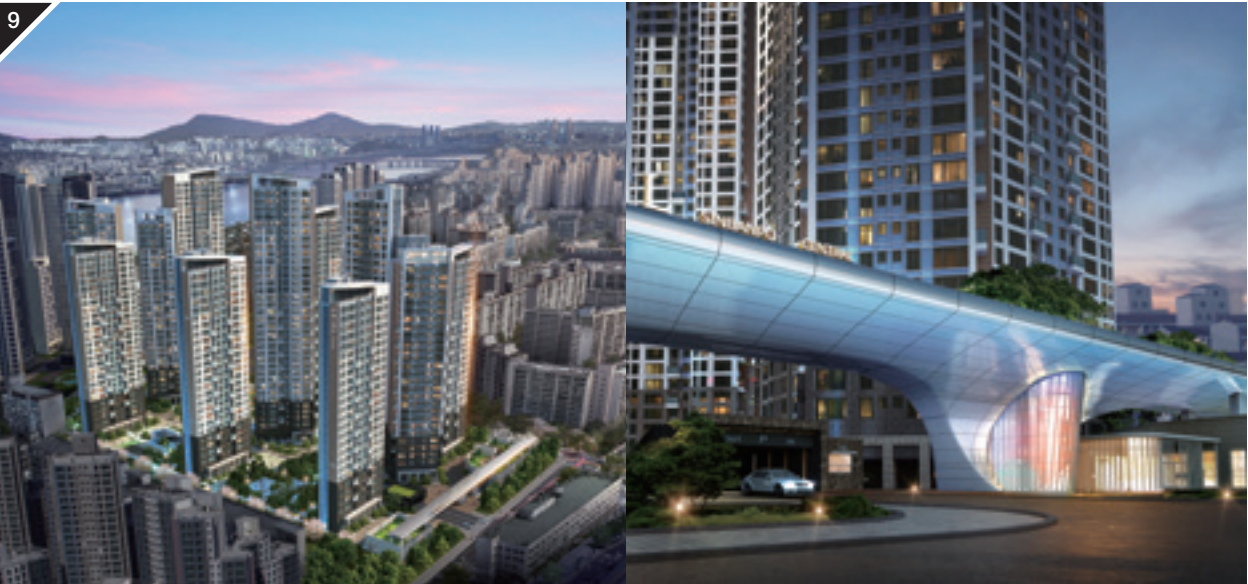
- Location : Sangil-dong, Gangdong-gu, Seoul (Redevelopment of
Godeok national housing apartments, complex 7)
- Summary : 4 stories below ground and 29 stories above,
20 buildings, 1,859 units

7. Gimpo Hangang LOTTE Castle (Dec. 2016 ~ Nov. 2018)

- Location : Gimpo, Gyeonggi-do
- Summary : 1 story below ground and 9 stories above,
32 buildings, 912 units

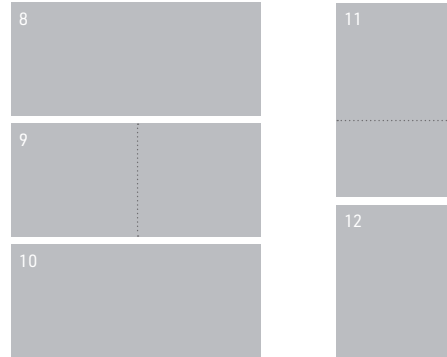


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16





8. Seongbok Station LOTTE Castle Gold Town
(Nov. 2015 ~ Jun. 2019)

- Location : Seongbok-dong, Suji-gu, Yongin, Gyeonggi-do
- Summary : 6 stories below ground and 22 ~ 34 stories above, 14 buildings, 2,731 units

9. LE EL Sinbanpo Central (Aug. 2019 ~ Aug. 2022 expected)

- Location : Jamwon-dong, Seocho-gu, Seoul (Reconstruction of Banpo Woosung Apartment)
- Summary : 3 stories below ground and 35 stories above, 7 buildings, 596 units

10. Yeongtong I'PARK Castle (Nov. 2016 ~ Mar. 2019)

- Location : Yeongtong-gu, Suwon, Gyeonggi-do
- Summary : 1 story below ground and 26 stories above, 26 buildings, 2,945 units

11. Cheongnyangni Station LOTTE Castle SKY-L65
(2019 ~ 2023 expected)

- Location : Jeonnong-dong, Dongdaemun-gu, Seoul (Cheongnyangni District 4)
- Summary : 7 stories below ground and 65 stories above, 4 buildings, 1,425 units

12. Haeundae LOTTE Castle Star
(Mar. 2017 ~ Sep. 2020 expected)

- Location : Jung-dong, Haeundae-gu, Busan
- Summary : 4 stories below ground and 49 stories above, 4 buildings, 906 units (828 apartment units and 78 studio units)

BUILDING

We engage in construction and renovation works for urban buildings including super high-rise buildings such as the LOTTE World Tower, multi-purpose and retail buildings, offices, facilities for education, medical service, logistics, and leisure.

While most domestic and international companies with high-rise building experiences tend to limit themselves to construction activities, LOTTE E&C, in collaboration with LOTTE Group affiliates, provide differentiated solutions including project development and planning, technical and economic feasibility studies, tenant marketing, design & engineering, and construction & operation, all adding value to the customers' real estate assets.

In overseas markets particularly ASEAN countries including Southeast Asia, LOTTE E&C is pursuing both technical bidding projects and investment development projects based on conditions of countries.

The company is improving its development capabilities in order to secure business opportunities in areas that are expected to grow in the future such as urban development and renovation in domestic and overseas.

Building Works Strategy

- Strengthen the company's capabilities in high-rises, multipurpose and retail facilities
- Two-pronged approach of pursuing technical bidding and investment development project
- Improve development capabilities to take advantage of expanded business opportunities in urban development and renovation



Performance

(Based on 2019 data)

- Orders USD **1,340** million
- Revenue USD **1,006** million

Highlight

- Awarded Society Prize and Work Prize from Korea Concrete Institute (2019.11)

LOTTE World Tower (Nov. 2010 ~ Feb. 2017)

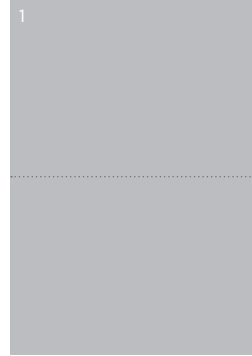
- Summary : 6 stories below ground and 123 stories above, height of 555m, gross floor area of 420,310m² (Total 805,872 m²)

LOTTE World Mall (Nov. 2010 ~ Oct., 2014)

- Summary : 6 stories below ground and 12 stories above, gross floor area of 385,562m² (Total 805,872 m²)

High-Rise Buildings





1. LOTTE World Tower (Nov. 2010 ~ Feb. 2017)

- Location : Sincheon-dong, Songpa-gu, Seoul
- Summary : 6 stories below ground and 123 stories above, height of 555m, gross floor area of 420,310m² (Total 805,872m²)
- Features : South Korea's landmark as well as the world's 5th tallest building, showcasing Korea's traditional beauty in both cutting-edge technology and nature

2. LOTTE World Mall (Nov. 2010 ~ Oct. 2014)

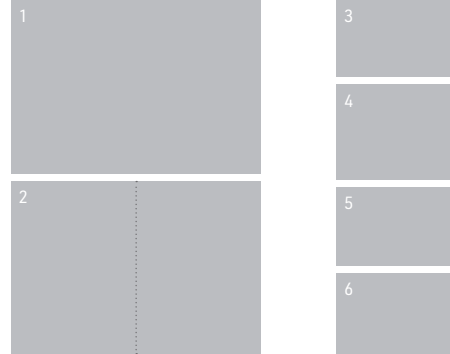
- Location : Sincheon-dong, Songpa-gu, Seoul
- Summary : 6 stories below ground and 12 stories above, gross floor area of 385,562m² (Total 805,872m²)
- Features : Eco-friendly complex boasting of various facilities including duty-free shop, shopping mall, hypermarket, cinema, aquarium, and concert hall

Multipurpose Facilities



21
22





1. Vietnam SND Star Lake Project (Nov. 2020 ~ Jan. 2024)

- Location: Star Lake site in the vicinity of West Lake, Hanoi, Vietnam
- Summary: 2 buildings with 4 stories below ground and 40 stories above, gross floor area of 215,099m²

2. LOTTE Center Hanoi in Vietnam (May. 2010 ~ Jun. 2014)

- Location : Hanoi, Vietnam
- Summary : 5 stories below ground and 65 stories above, height of 272m, gross floor area of 253,134m², 258 units for service residence, 318 rooms for the hotel, commercial and office area

3. Songdo Shopping mall and Studio (Apr. 2016 ~ Jul. 2019)

- Location : Songdo-dong, Yeonsu-gu, Incheon
- Summary : 3 stories below ground and 41 stories above, gross floor area of 148,873m²
- Features : Increasing living convenience condition due to multi shopping mall development such as movie theater and sales facilities

4. Moscow LOTTE Business Center in Russia (Jan. 2011 ~ Feb. 2013)

- Location : Moscow, Russia
- Summary : 2 stories below ground and 22 stories above, gross floor area of 58,660m²

5. Hwaseong Dongtan New Town 2 C11 Block Residential and Commercial Complex (Jul. 2017 ~ Jun. 2021 expected)

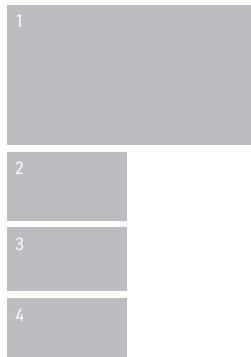
- Location : Hwaseong, Gyeonggi-do (Dongtan New Town 2)
- Summary : 6 stories below ground and 49 stories above, gross floor area of 505,189m²

6. Giheung HIGGS Urban Advanced Industry Complex (Jan. 2017 ~ Nov. 2019)

- Location : Yeongduk-dong, Giheung-gu, Yongin, Gyeonggi-do
- Summary : 5 stories below ground and 24 stories above, gross floor area of 198,236m²

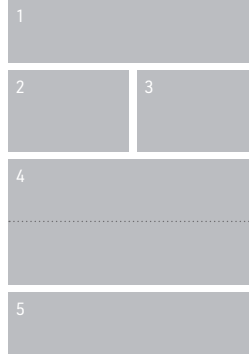
Retail Facilities

23
24



1. LOTTE Outlet Yongin (Apr. 2017 ~ Dec. 2018)
 - Location : Giheung-gu, Yongin, Gyeonggi-do
 - Summary : 3 stories below ground and 3 stories above, gross floor area of 175,031m²
2. LOTTE Mall Suwon (May. 2012 ~ Sep. 2014)
 - Location : Gwonseon-gu, Suwon, Gyeonggi-do
 - Summary : 3 stories below ground and 8 stories above, gross floor area of 213,566m²
3. Gimpo International Airport SKY PARK Development Project (Nov. 2007 ~ Nov. 2011)
 - Location : Banghwa-dong, Gangseo-gu, Seoul
 - Summary : 5 stories below ground and 9 stories above, gross floor area of 316,152m²
4. Pyeongtaek Bijeon-dong Garosu-gil Development Project (Sep. 2017 ~ Apr. 2019)
 - Location : Bijeon-dong, Pyeongtaek, Gyeonggi-do
 - Summary : 2 stories below ground and 4 stories above, gross floor area of 45,279m² (Shopping mall, department store, mart, cinema, and hotel)

Medical Service · Office · Lodging and Leisure Facilities



1. Yonsei Cancer Center (Jul. 2010 ~ Mar. 2014)

- Location : Sinchon-dong, Seodaemun-gu, Seoul
- Summary : 7 stories below ground and 15 stories above, gross floor area of 105,201m²

2. G Valley G-Square Development Project (Dec. 2017 ~ Sep. 2020 expected)

- Location : Guro-dong, Guro-gu, Seoul
- Summary : 7 stories below ground and 39 stories above, gross floor area of 172,551m²

3. LOTTE Hotel L7 Hongdae (May. 2017 ~ Feb. 2018)

- Location : Donggyo-dong, Mapo-gu, Seoul
- Summary : 5 stories below ground and 22 stories above, 340 rooms

4. LOTTE Resort Sokcho (Dec. 2014 ~ Jul. 2017)

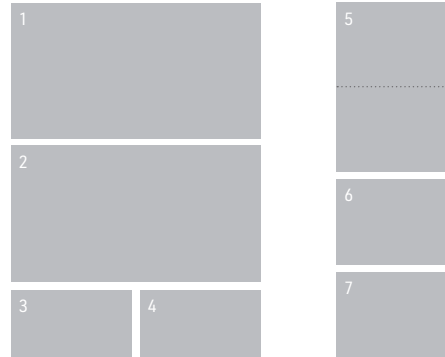
- Location : Daepo-dong, Sokcho, Gangwon-do
- Summary : 3 stories below ground and 9 stories above, 392 rooms (173 rooms for the hotel, and 219 rooms for the condominium)

5. Hanam Misa 1-1, 2BL Knowledge Industry Center (Oct. 2019 ~ Dec. 2020)

- Location : Mangwol-dong, Hanam, Gyeonggi-do
- Summary : 4 stories below ground and 10 stories above, gross floor area of 315,935m²

Airport · Logistics · Educational and Research Facilities





1. Incheon International Airport Terminal 2 Frontal Area (Superstructure and Finishing Works) (Aug. 2014 ~ Jan. 2018)

- Location : Incheon International Airport in Unseo-dong, Jung-gu, Incheon
- Summary : 4 stories below ground and 2 stories above, gross floor area of 139,038m², Transportation facilities such as transfer facilities, bus platforms, and KTX lobby (applied Space Frame construction method to the atypical building)

2. Incheon Port International Passenger Terminal (Dec. 2016 ~ May. 2019)

- Location : Songdo-dong, Yeongsu-gu, Incheon
- Summary : 5 stories above ground, gross floor area of 66,690m²

3. LOTTE Logistics Center Yangsan (Jul. 2019 ~ Jun. 2021)

- Location : Yusan-dong, Yangsan-si, Gyeongsangnam-do
- Summary : 1 story and 7 stories above ground, gross floor area of 46,987m²
- Features : The largest logistics center in the Yeongnam District, integrating the operations of seven logistics centers and a smart center

4. LOTTE Logistics Central MEGA HUB Terminal (Jun. 2019 ~ Mar. 2021)

- Location : Chopyeong-myeon, Jincheon-gun, Chungcheongbuk-do
- Summary : 1 story and 4 stories above ground, gross floor area of 167,180m²
- Features : The first project after the integration of LOTTE Group's logistics companies, this facility is specialized for e-commerce with cutting-edge automation equipment. Can handle an average volume of 1.5 million parcels per day (Largest logistics facility within the group)

5. Yonsei University School of Business (Jan. 2014 ~ Sep. 2015)

- Location : Sinchon-dong, Seodaemun-gu, Seoul
- Summary : 3 stories below ground and 6 stories above, gross floor area of 20,135m²

6. Dongduk Women's University Multipurpose Hall (Nov. 2013 ~ Aug. 2016)

- Location : Hawolgok-dong, Seongbuk-gu, Seoul
- Summary : 4 stories below ground and 9 stories above, gross floor area of 24,666m²

7. LOTTE R&D CENTER (Feb. 2015 ~ Jun. 2017)

- Location : Magok-dong, Gangseo-gu, Seoul
- Summary : 3 stories below ground and 8 stories above, gross floor area of 82,929m²
- Features : Open Architecture where a courtyard is situated in the middle of the building, comprehensive food R&D Center of LOTTE subsidiaries

PLANTS

LOTTE E&C is involved in constructing national and industrial infrastructures in many areas at domestic and overseas, ranging from petrochemical product manufacturing plants to raw material storage facilities, industrial plants, and power plants.

We provide one-stop services as Project Manager, EPC Contractor, and IPP Developer throughout the value chain covering project planning, technical & economic feasibility studies, design and engineering, procurement, construction, commissioning, project management, and O&M.

As the investments in petrochemical industries are expected to increase, due to economic development in both advanced countries and newly industrialized Asian countries and shifting demand to high-value products, LOTTE E&C is enhancing its petrochemical plant EPC execution capabilities and its IT system and training high-skilled human resources to increase our competitiveness.

In response to changes in the domestic and international power generation market, LOTTE E&C is enhancing its global competitiveness through various approaches such as developing businesses, conducting feasibility studies, financing, EPC, and general construction in many projects like LNG combined cycle power plants, cogeneration plants, and renewable energies like wind, solar, and others.

Plant Works Strategy

- Strengthen our capabilities in all areas of petrochemical plant operation
- Develop differentiable competitiveness in LNG and renewable energy power generation businesses



Performance

(Based on 2019 data)

- Orders USD **776** million
- Revenue USD **277** million

Highlight

- Achieved key experiences in petrochemical plants including NCC and Polymers plants
- Completed LNG Cogeneration Plant Project in Indonesia (Feb. 2019)

LOTTE BP Chemicals A Project

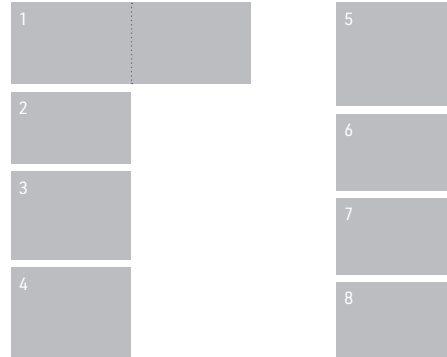
- Location : Cheongnyang-eup, Ulju-gun, Ulsan
- Summary : CO&AA Plant De-Bottleneck
(increase production of acetic acid to 100,000 tons/year)

Petrochemical Plants



29
30

1. TE-3 Project in Malaysia (Feb. 2016 ~ Jul. 2017)
 - Location : Pasir Gudang, Johor, Malaysia
 - Summary : Ethylene (91KTA¹⁾), Propylene (125KTA), BTX²⁾ (134KTA) production plant
2. TPP3 Project in Malaysia (Dec. 2016 ~ Jun. 2018)
 - Location : Pasir Gudang, Johor, Malaysia
 - Summary : Built additional PP³⁾(200KTA) production plant expansion(220,000ton)
3. LOTTE Chemical H-NC3 Project (May. 2017 ~ Oct. 2018)
 - Location : Jungheung-dong, Yeosu, Jeollanam-do
 - Summary : BD⁴⁾ (20KTA), BTX (40KTA) expansion, NCC⁵⁾ Plant Heater & GTG⁶⁾(EPC)
4. Indonesia ASC P6 PKG1 Project (Dec. 2013 ~ Jan. 2016)
 - Location : Cilegon, Indonesia
 - Summary : EDC⁷⁾ · VCM⁸⁾ (400KTA) production plant



5. LOTTE Chemical IP Project (Dec. 2014 ~ Oct. 2016)

- Location : Jungheung-dong, Yeosu, Jeollanam-do
- Summary : IPM⁹⁾ (32KTA), DCPD¹⁰⁾ (12KTA), PIP¹¹⁾ (46KTA) production plant (EPC)

6. LOTTE Chemical HC2 Project (Mar. 2018 ~ Aug. 2019)

- Location : Jungheung-dong, Yeosu, Jeollanam-do
- Summary : PC¹²⁾ (110KTA), DMC¹³⁾ (29KTA) production plant expansion (EPC)

7. LOTTE Chemical MeX3 Project (Apr. 2018 ~ Sep. 2019)

- Location : Sanggae-dong, Nam-gu, Ulsan
- Summary : MeX¹⁴⁾ (200KTA) production plant (EPC)

8. LOTTE Chemical POE Project (Sep. 2017 ~ Feb. 2019)

- Location : Jungheung-dong, Yeosu, Jeollanam-do
- Summary : POE¹⁵⁾ (10KTA) production plant (EPC)

1) KTA : Kilo Tons per Annum (Metric Ton)

2) BTX : Benzene, Toluene, Xylene

3) PP : Polypropylene

4) BD : Butadiene

5) NCC : Naphtha Cracking Center

6) GTG : Gas Turbine Generator

7) EDC : Ethylene Dichloride

8) VCM : Vinyl Chloride Monomer

9) IPM : Isoprene Monomer

10) DCPD : Dicyclopentadiene

11) PIP : Piperylene

12) PC : Poly Carbonate

13) DMC : Dimethylcarbonate

14) MeX : Meta Xylene

15) POE : Polyolefin Elastomer

Power Plants



31
32

1. Grati Combined Cycle Power Plant in Indonesia (Jun. 2016 ~ Feb. 2019)

- Location : Near Surabaya in Java, Indonesia
- Summary : LNG Combined Cycle Power 501MW
(2 units of GT²⁾ 151.4MW, 1 unit of ST²⁾ 198.2MW,
and 2 units of HRSG³⁾)
- Features : LOTTE E&C's first power plant project in Indonesia

2. Seoul Combined Cycle Power Plant 1 and 2 (Oct. 2015 ~ Jun. 2020)

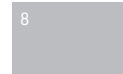
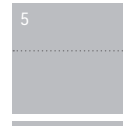
- Location : Hapjeong-dong, Mapo-gu, Seoul
(Former thermoelectric power plant in Dangin-ri)
- Summary : 2 units each rated at 400MW (800MW) (GT 267.5MW 2
units, ST 127.9MW 2 units, HRSG 256Gcal/h 2 units)
- Features : The world's first underground combined cycle
power plant project

3. Daegu Cogeneration Power Plant (Oct. 2012 ~ Dec. 2014)

- Location : Yulam-dong, Dong-gu, Daegu
- Summary : 415MW LNG Combined Cycle Power
(Single-shaft system) (1 unit each for GT 274MW,
ST 141MW, and HRSG 150Gcal/h)

4. Al Qatrana Combined Cycle Power Plant in Jordan (Jul. 2008 ~ Aug. 2011)

- Location : Al Qatrana, Jordan
- Summary : 377MW (2 units of GT 130MW, 1 unit of ST 120MW,
and 2 units of HRSG 105T/H⁴⁾)



**5. Al Manakher Diesel Engine Power Plant in Jordan
(Sep. 2012 ~ Sep. 2014)**

- Location : Al Manakher, Jordan
- Summary : 573MW (38 units of 16MW diesel engine power generator)

**6. Cogeneration Plant for Gwangju and Jeollanam-do
(Apr. 2015 ~ Dec. 2017)**

- Location : Sanpo-myeon, Naju, Jeollanam-do
- Summary : 22MW power generation facility, 45Gcal/h heating facility (ST 22MW 1 unit, SRF⁵⁾ boiler 1 unit)
- Features : cogeneration plant project utilizing SRF from Korea District Heating Corp.

7. Yeongheung Thermal Power Plant 5 & 6 (Apr. 2010 ~ Dec. 2014)

- Location : Yeongheung-myeon, Ongjin-gun, Incheon
- Summary : 2 units of 870MW (Coal burning, ultra super-critical once-through thermal power plants)

8. Gunsan GE4 Coal-fired Power Plant (May. 2013 ~ May. 2016)

- Location : Soryong-dong, Gunsan, Jeollabuk-do (within the Gunsan Local Industrial Complex)
- Summary : 250MW
(1 unit each for CFBC⁶⁾ Boiler 950T/H and STG 250MW power generation facility)

1) GT : Gas Turbine
 2) ST : Steam Turbine
 3) HRSG : Heat Recovery Steam Generator
 4) T/H : Ton per Hour
 5) SRF : Solid Refuse Fuel
 6) CFBC : Circulating Fluidized Bed Combustion

INFRASTRUCTURE

LOTTE E&C contributes to national land development and infrastructure expansion at home and abroad, including transportation and logistical facilities (Roads, railways, subways, airports, and ports), landfill and site renovation (Housing site, industrial complexes, and port hinterlands), water treatment systems (Water supply, water cleaning, and sewage & wastewater treatment), and irrigation facilities (Dams, waterways, and hydro power plants).

33 We provide total solutions in public financing projects (Turnkeys, technical proposals, and contracted works) and private investment projects (PPP, BOT, BTO, BOO, BTL, etc.) ranging from project planning, technical & economic feasibility analysis, financing & direct investment, and design & construction to post-construction facility maintenance.

34 We are strengthening the planning, feasibility analysis, and technology for each business model in a variety of ways, focusing on marketable and differentiated products (Land transportation facilities, site creation, water environment facilities, and ports) through roads, railways, subways at which we have existing performance and strengths.

For ground transportation facilities in particular, we have increased our competencies for long-span bridges and tunnels. We have developed various water treatment technologies such as water supply, water cleaning, and wastewater treatment, both exclusively at our own Technology Research Institute and jointly with external specialist companies and institutions. We are striving to exert our differentiated competitiveness driven by technological prowess at home and abroad.

Infrastructure Works Strategy

- Obtain differentiated technology and business competitiveness in all products
- Increase capability in technology proposals and public-private partnership-based project



Performance

(Based on 2019 data)

- Orders USD **822** million
- Revenue USD **517** million

Highlight

- Awarded the excellence prize in civil engineering at the 15th Civil Engineering and Construction Technology Awards (Seoripul Tunnel, 2019.12)
- Obtained construction order for section 2 of the Munsan-Dorasan Expressway (T/K)

Sandaldo Bridge (Sep. 2013 ~ Dec. 2018)

- Location : Geoje-myeon, Geoje, Gyeongsangnam-do
- Summary : Total Length=1.413km (B=11.0m ~ 15.7m, Two Lanes)
Main Span (Cable-stayed Bridge)=280m
Connecting Bridge (PSC Beam)=340m
- Features : Maritime cable-stayed bridge

Ground Transportation

35



36



1. Gyeongin Expressway 2 (Anyang ~ Seongnam) Section 4 (May. 2012 ~ Sep. 2017)

- Location : Unjung-dong, Bundang-gu to Yeosu-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do
- Summary : Total 7.82km, total 4 lanes, 9 bridges (1.6km), 1 tunnel (0.9km), 1 entrance facility, and 1 tollgate & office

2. 5 Sections of National Expressway Route 30 – Sangju ~ Yeongdeok (Sections 3, 4, 5, 15, 18) (Jul. 2010 ~ Dec. 2016)

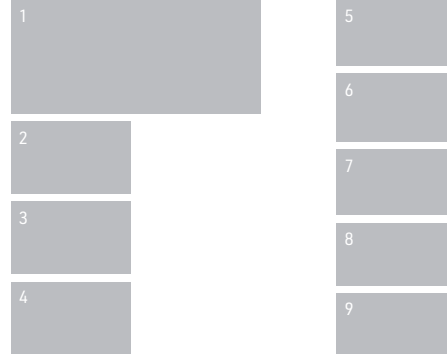
- Location : Saengsong-ri, Danmil-myeon, Uiseong-gun to Wonjik-ri, Ganggu-myeon, Yeongdeok-gun, Gyeongsangbuk-do
- Summary : Total 34.86km, total 4 lanes, 32 bridges (5.091km), 9 tunnels (10.953km), 1 service area (Uiseong)

3. Seocho Station ~ Bangbae Road Connecting Road Construction (Seoripul Tunnel) (Oct. 2015 ~ May. 2019)

- Location : Naebang station crossroad, Bangbae-dong to Seocho station crossroad, Seocho-dong in Seocho-gu
- Summary : Total 1.28km, width 40m(6 ~ 8 lanes), NATM tunnel(260m), open-cut tunnel(140m)

4. Yen Vien-Lao Cai Railway Upgrade Project on Section No.3 in Vietnam (Mar. 2013 ~ Jul. 2015)

- Location : Lao Cai Province, Vietnam
- Summary : Renovation of the existing railway (73.9km) and 5 bridges, slope protection, and communications & signaling system reinforcements



5. Seoul Metro Line 9 Phase 3 Section 920
(Dec. 2009 ~ Dec. 2018)

- Location : Seokchon-dong(Seokchon station) to Bangi-dong (Olympic Park 4th south gate), Songpa-gu, Seoul
- Summary : Total 1.391km (TBM Shield Tunnel 945m, Open Cut BOX 119m), 1 station (Songpanaru)

6. Dongji Bridge (Jeokseong ~ Jeongok National Road Section 2)
(Jul. 2009 ~ Jan. 2016)

- Location : Yeoncheon-gun, Gyeonggi-do
- Summary : Total 2.34km, width 20.0m, total 4 lanes, 1 cable-stayed bridge (L=0.4km, W=20.9m), 1 interchange

7. Busan LOTTE Town Yeongdo Bridge Improvement & Restoration (Jul. 2007 ~ Jul. 2014)

- Location : Jungang-dong, Jung-gu to Daegyo-dong, Yeongdo-gu, Busan
- Summary : Total 0.215km, total 6 lanes, bascule bridge

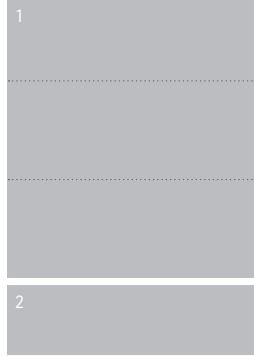
8. Eulsukdo Bridge Private Investment Construction Project
(Jan. 2005 ~ Jan. 2010)

- Location : Sinpyeong-dong, Saha-gu to Myeongji-dong, Gangseo-gu, Busan
- Summary : Total 5.205km, width 25.5 ~ 35m, total 6 lanes

9. Banghwa Bridge (Dec. 1995 ~ Nov. 2000)

- Location : Banghwa-dong, Gangseo-gu, Seoul to Gangmae-dong, Goyang-si, Gyeonggi-do
- Summary : Total 2.559km, width 27.8m, total 6 lanes

Water Treatment Systems



37

38

1. Treated Sewage Water Recycling Facility in Pohang (Private Investment Project) (Feb. 2012 ~ Jul. 2014)

- Location : Sangdo-dong, Nam-gu, Pohang-si, Gyeongsangbuk-do (Within the Pohang Sewage Treatment Plant)
- Summary : Site area of 16,122m², building area of 2,282m², recycling facilities of 100,000 tons/day, concentrate stream of 9,000 tons/day, supply pipeline of 11.5km (D200 ~ 900), Ultra-Filtration (U/F) + Reverse Osmosis (R/O)

2. Nongso Sewage Treatment Plant (Private Investment Project) (Feb. 2013 ~ Feb. 2016)

- Location : Sangan-dong, Buk-gu, Ulsan
- Summary : Sewage treatment plant (100,000 tons/day), 2 pumping stations, interceptor of 7.5km, recycling pipeline of 2.2km, discharge pipeline of 0.4km, MSBR + tertiary treatment (Biofilm filtration, ultraviolet sterilization)

Golf Courses • Dams • Site Renovation



1. Cheongna Bear's Best Country Club (Sep. 2009 ~ Jan. 2012)

- Location : Cheongna-dong, Seo-gu, Incheon (Cheongna International City)
- Summary : Total area of 1,360,105m², 27 holes, 28 greens, 116 tee boxes, club house

2. LOTTE Skyhill Buyeo Country Club (Jun. 2010 ~ Apr. 2013)

- Location : Gyuam-myeon, Buyeo-gun, Chungcheongnam-do
- Summary : Total area of 950,640m², 18 holes, 18 greens, 58 tee boxes, club house

3. Heightening Work of the Agricultural Reservoir Embankment at Damyang Lake (Sep. 2011 ~ Mar. 2014)

- Location : Daeseong-ri, Geumseong-myeon, Damyang-gun, Jeollanam-do
- Summary : Embankment (W=20m, L=306m), overflow weir (L=62m), drainage canal (L=293.5m), road relocation (L=1.89km)

4. Housing Site Development in Ungcheon District (Apr. 2004 ~ Jun. 2016)

- Location : Ungcheon-dong, Yeosu, Jeollanam-do
- Summary : Total area of 2,800,000m², ground cutting of 8,523,919m³, ground fill-up of 6,281,776m³, water supply pipeline of 50,015m, rainwater pipeline of 41,492m, and sewage pipeline of 26,320m

5. Pakistan Gulpur Hydroelectric Power Plant (Nov. 2015 ~ Mar. 2020)

- Location : Kashmir, Pakistan (Poonch River)
- Summary : Power generation facilities 102 MW (2 × 51 MW), dam (H=66.5M, L=205M)

GLOBAL

Overseas business offers many risks as well as opportunities. Therefore, with the goal of achieving stable and robust growth from a long-term perspective, LOTTE E&C is focusing on improving its capabilities in investment-based development projects and securing project orders where technological competence is key.

LOTTE E&C is expanding its business in neighboring countries in Southeast Asia, with Vietnam, Indonesia, and Singapore as its main targets. In the case of Vietnam and Indonesia in particular, we have shifted much of our sales activities to local branch offices to put us in a better position to secure new projects. In 2019, LOTTE E&C established local real estate development corporations to officially pursue investment-based development projects. Furthermore, to enter Singapore market where there is high demand for infrastructures, LOTTE E&C established a local branch office and acquired a construction permits. In other words, the company is increasing its competitive strengths needed to enter advanced construction markets in overseas countries.

We provide differentiated values to customers through our flagship products that include high-rise buildings, multipurpose and retail facilities, residential buildings, petrochemical plants, industrial plants and power plants, and ground transportation facilities. Moreover, from a value chain perspective, we are working hard to meet the demand for better values from customers, from planning and financing to management after the completion of construction. This is why we are augmenting our capabilities in all elements of the construction business, not just in erecting buildings and facilities.

39
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Overseas Business Strategy

- Pursue growth with a business model tailored for each country and type of product (technical bidding and investment development)
- Increase the localization of overseas subsidiaries engaged in investment-based development projects



LOTTE Center Hanoi in Vietnam



La Premier Development Project in Ho Chi Minh City, Vietnam



Performance

(Based on 2019 data)

- Orders USD **965** million
- Revenue USD **199** million
(Including overseas branches)

Highlight

- Established overseas subsidiaries for investment-based development projects in Vietnam and Indonesia and an overseas branch in Singapore
- Completed construction of multipurpose facility and LNG plant in Indonesia
- Expanded business in Cambodia

Da Nang - Quang Ngai Expressway Construction Package A4 in Vietnam



TE-3 Project in Malaysia



Kota Kasablanka Phase 2 in Indonesia

Southeast Asia

41
42



1. LOTTE Mall in Hanoi, Vietnam (Mar. 2020 ~ Apr. 2023)

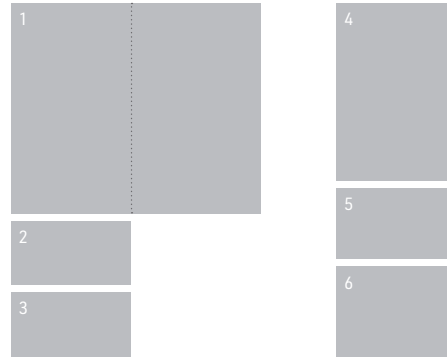
- Location : Hanoi, Vietnam
- Summary : 2 stories below ground and 23 stories above, 4 buildings, gross floor area of 381,787m², 264 rooms for the hotel, 198 units for service residence, shopping mall, supermarket, office area, etc.

2. Yen Vien-Lao Cai Railway Upgrading Project Construction Package No.3 in Vietnam (Mar. 2013 ~ Jul. 2015)

- Location : Lao Cai Province, Vietnam
- Summary : Renovation of the existing railway (73.9km) and 5 bridges, slope protection, communications & signaling system

3. Da Nang-Quang Ngai Expressway Construction Package A4 in Vietnam (Mar. 2014 ~ Apr. 2019)

- Location : Da Nang - Quang Ngai, Vietnam
- Summary : Total 14.6km, 4 lanes, 8 bridges, 1 unit of office



4. Kota Kasablanka Phase 2 in Indonesia (Oct. 2015 ~ Sep. 2018)

- Location : Jakarta, Indonesia
- Summary : 5 stories below ground and 41 to 43 stories above, gross floor area of 365,251m², 2 apartment buildings (1,211 units), 1 office building

5. Grati Combined Cycle Power Plant in Indonesia (Jun. 2016 ~ Feb. 2019)

- Location : Near Surabaya on Java, Indonesia
- Summary : LNG Combined Cycle Power 501MW EPC (Two units of GT 151.4MW, one unit of ST 198.2MW, and two units of HRSG)

6. Indonesia ASC P6 PKG1 Project (Dec. 2013 ~ Jan. 2016)

- Location : Cilegon, Indonesia
- Summary : EDC / VCM (400KTA) production plant

Southeast Asia



43
44

- 7. TE-3 Project in Malaysia (Feb. 2016 ~ Jul. 2017)
 - Location : Pasir Gudang, Johor, Malaysia
 - Summary : Ethylene 91KTA, Propylene 125KTA, BTX 134KTA production plant

- 8. TPP3 Project in Malaysia (Dec. 2016 ~ Jun. 2018)
 - Location : Pasir Gudang, Johor, Malaysia
 - Summary : PP 200KTA production plant (EPC)

- 9. Sathapana Bank HQ building, Cambodia (May. 2018 ~ Nov. 2020 expected)
 - Location : Phnom Penh, Cambodia
 - Summary : 4 stories below ground and 19 stories above, gross floor area of 35,136m²



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10. La Premier Development Project in Ho Chi Minh City, Vietnam (2018 ~ 2022)

- Location : Thanh My Loi, Ho Chi Minh City District 2, Vietnam
- Summary : 25 stories above ground, 2 buildings, 725 unit
- Features : Joint Venture with Phu Cuong, local developer

11. New East 2 Development Project, Jakarta Garden City, Indonesia (2019 ~ 2024)

- Location : Jakarta Garden City, East Indonesia
- Summary : 7 buildings with 1 floor below ground and 32 floors above, 3,310 apartments, 64 shops
- Features : J/V project with Indonesian developer Modern Land

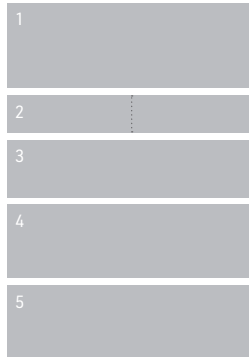
12. Charmington Dragonic Development Project, Ho Chi Minh, Vietnam (2020 ~ 2024)

- Location : District 5, Ho Chi Minh, Vietnam
- Summary : 2 buildings with 3 floors below ground and 35 floors above, 418 apartment units
- Features : J/V project with Vietnamese developer TTC

13. FLC Premier Park Development Project in Hanoi, Vietnam (2019 ~ 2023)

- Location : Nam Tu Liem, Hanoi, Vietnam
- Summary : 1 story below ground and 12 stories above, 2 buildings, 870 units of apartments, 145 units of villas and townhouses
- Features : Joint Venture with FLC Group, local developer

Middle East · Southwest Asia



45
46

1. Gulpur Hydropower Plant in Pakistan
(Sep. 2014 ~ Mar. 2020)

- Location : Kashmir, Pakistan (Poonch River)
- Summary : Power plants of 102MW (2 units of 51MW), dam (H=66.5M, L=205M)

2. Qatar Metro Red Line North Elevated and At-grade Sections
(Dec. 2014 ~ Nov. 2019)

- Location : Doha, Qatar
- Summary : Total 6.7km (Viaduct of 2.3km, elevated section of 1.8km, open-cut tunnel of 0.3km, trough of 1.9km, 2 stations)

3. Al Manakher Diesel Engine Power Plant in Jordan
(Sep. 2012 ~ Sep. 2014)

- Location : Al Manakher, Jordan
- Summary : 573MW (38 units of 16MW diesel engine power generators)

4. Al Qatrana Combined Cycle Power Plant in Jordan
(Jul. 2008 ~ Aug. 2011)

- Location : Al Qatrana, Jordan
- Summary : 377MW (2 units of GT 130MW, 1 unit of ST 120MW, and 2 units of HRSG 105T/H)

5. LPG Tank Project in Jordan (Sep. 2008 ~ Nov. 2010)

- Location : Zarqa, Jordan
- Summary : 4 units of 2,000-ton LPG storage tanks and its subsidiary facilities

CIS



1. 1st stage of New Arbat LOTTE Plaza in Russia
(Sep. 2003 ~ Jul. 2007)

- Location : Moscow, Russia
- Summary : 4 stories below ground and 21 stories above,
gross floor area of 84,700m²

2. 2nd stage of New Arbat LOTTE Hotel in Russia
(Feb. 2008 ~ Aug. 2010)

- Location : Moscow, Russia
- Summary : 4 stories below ground and 10 stories above,
gross floor area of 62,609m²

3. Moscow LOTTE Business Center (Jan. 2011 ~ Mar. 2013)

- Location : Moscow, Russia
- Summary : 2 stories below ground and 22 stories above,
gross floor area of 58,660m²

4. LOTTE Hotel St. Petersburg (Feb. 2015 ~ Aug. 2017)

- Location : St. Petersburg, Russia
- Summary : 1 story below ground and 6 stories above,
154 rooms, spa, banquet, restaurant, etc.

Challenge

47

48

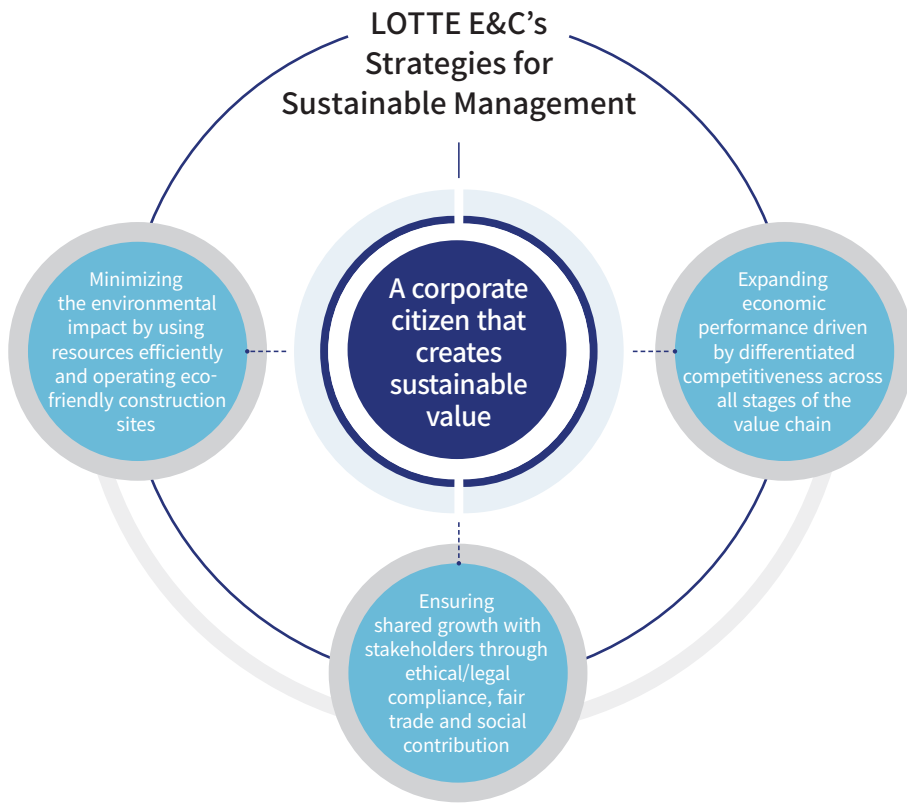
LOTTE E&C prepares for the future through changes and innovations.

- 49 Sustainability Management Strategies and System
- 51 Strategic Response to Mega Trends in the Construction Industry
- 52 Stakeholders' Participation and Materiality Assessment
- 53 Sustainable Development Goals (SDGs)



Sustainability Management Strategies and System

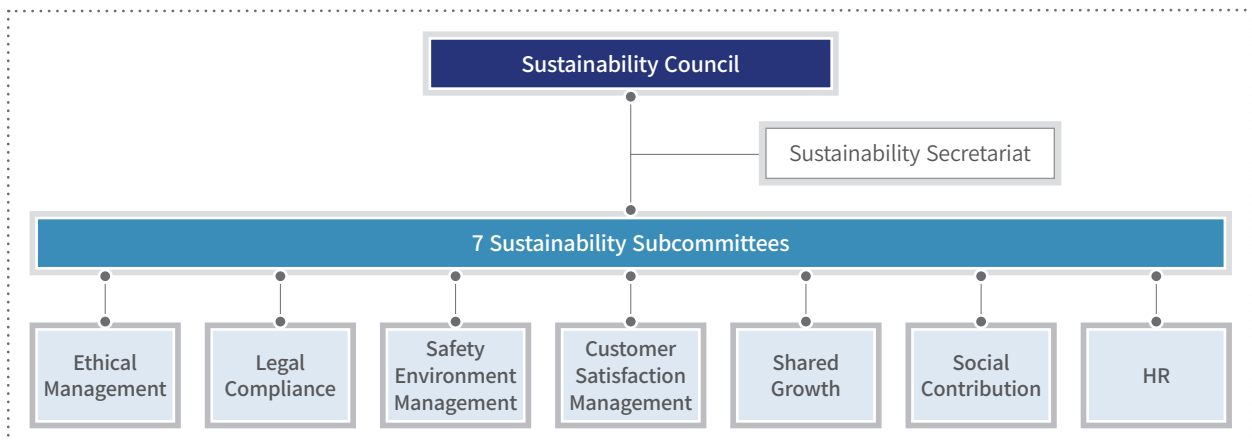
Sustainability Management Strategy



49
50

Sustainability Council

LOTTE E&C operates the Sustainability Council made up of 7 subcommittees, presiding under the CEO, for the purpose of improving sustainability and fulfilling social responsibilities. The council runs the Sustainability Secretariat, which functions as the executive office of sustainability management and conducts activities such as establishing mid to long-term strategies and forming and implementing detailed strategic plans for each of the subcommittees, managing performance and responding to external policies and regulations.

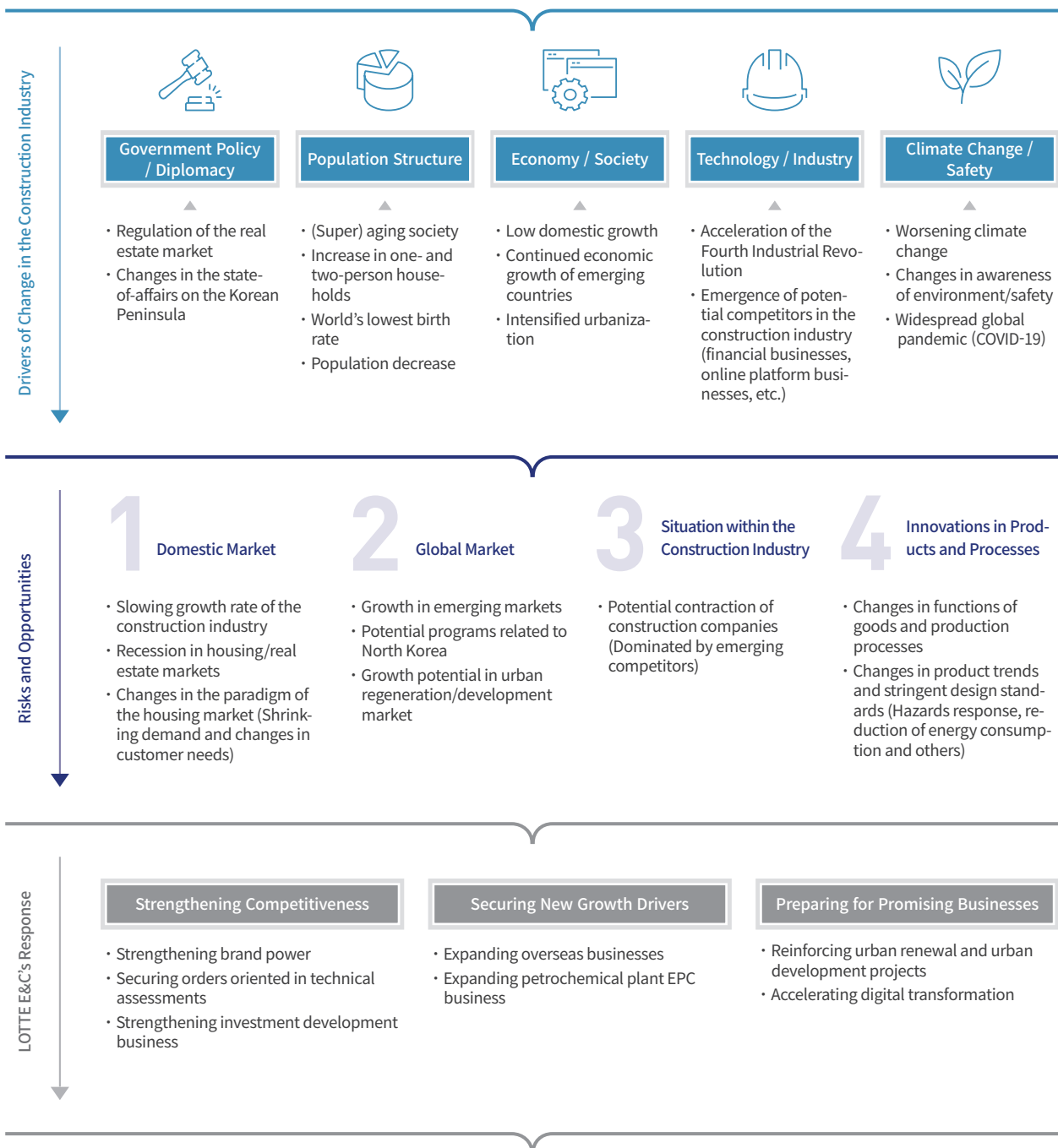


Strategies and Performance Results of Subcommittees

Subcommittee	Strategy Objectives	Strategy Direction	2019 Performance Results			
Ethical Management	Become an ethical company that operates based on principle and trust	<ol style="list-style-type: none"> Enhance ethical management implementation system Internalize the ethical awareness of employees Enhance communication program for ethical management 	96 points Ethical Management Evaluation Score	116 cases Number of Post-audit Improvement Cases	3,360 employees Number of Employees Attended Education Sessions on Ethical Management	870 cases Number of Reports through Cyber Ombudsman channel
Legal Compliance	A company leads the culture of compliance	<ol style="list-style-type: none"> Operate an effective compliance program Internalize and raise employee awareness related to legal compliance Preemptive management of risks 	Expanded Operation of Compliance Programs	2,999 employees Number of employees* Who Have Received Compliance Education (*Daily workers included)	Established a Compliance System For Subcontractors and Internal Transactions	Newly Established a TFT for Subcontractor Improvement
Safety in practice, a bright and clean working environment	Achieve the first ZERO fatalities year	<ol style="list-style-type: none"> Strengthen implementation Practice and focus Promote a culture of safety (I Respect U) 	1.39 ^{0/000} Industrial Accident Rate	1,158 times Number of Site Safety Inspections	3,338 attendees Total Number of Employees Attending Safety Education (Employees of Partner Companies included)	
	Achieve ZERO environmental accidents	<ol style="list-style-type: none"> Increase eco-friendly awareness Expand eco-friendly friendly businesses activity Establish preemptive response systems for environmental regulations 	44,414 tCO ₂ eq Achieved Target Reduction Rate (8.8 %) Compared to Forecasted GHG emission rate	USD 45.14 million Procurement of Certified Eco-friendly Products	USD 21.31 million R&D Expenditure	
Customer Satisfaction Management	Impress customers and create better value with products and services of the highest quality	<ol style="list-style-type: none"> Develop products based on customer needs Precision construction / Quality innovation 	102 inspections Quality inspections completed	16 sessions Quality Innovation Academy	97.5% Satisfaction rate of Castle Clean Service	Launched high-end residential brand, LE-EL Castle Residential Products
Shared Growth	A company leading in shared growth based on fair trade and mutual interactions	<ol style="list-style-type: none"> Build fair-trade relationships Reinforce the support system for partner companies Establish trust with partner companies 	USD 27.64 million Total financial support	97 points Shared Growth Indicator		
Social Contribution	A company that seeks to grow with local communities by sharing love	<ol style="list-style-type: none"> Expand the flagship social contribution program Launch social contribution activities that are beneficiary-oriented Establish a culture of voluntary employee participation 	USD 2.83 million Social contribution expenditure	225 teams Charlotte Voluntary Service Corps	6,070 hours Volunteer hours of Charlotte Voluntary Corps	1,480 employees No. of employees that took part in social contribution activities
HR	A sustainable company through improved future value	<ol style="list-style-type: none"> Build a culture where diversity is a fundamental feature Strengthen implementation of corporate culture Cultivate the human talent needed for sustainable business growth 	3,360 employees No. of employees who attended educational programs	115 hours No. of hours of education per employee	USD 3.10 million Education expenditure	

Strategic Response to Mega Trends in the Construction Industry

LOTTE E&C formulated our mid to long-term strategy, by analyzing the drivers of change in the construction industry based on global mega trends, to respond to the opportunities and threats potent in the future. We seek to supplement our operational structure, heavily dependent on domestic projects, by expanding our overseas business and diversifying our portfolio with projects that require cutting-edge technology and development projects. We are also striving to attract more talented employees and strengthen our systems to further build capacity in chemical plants, which are expected to lead future business growth, while exploring promising business opportunities related to global urbanization and digital transformations. Through the efforts above, LOTTE E&C plans to solidify the foundation for sustainable development and will achieve the Vision 2030, to become a ‘Global Leading EPC Contractor, Total Service Provider’.

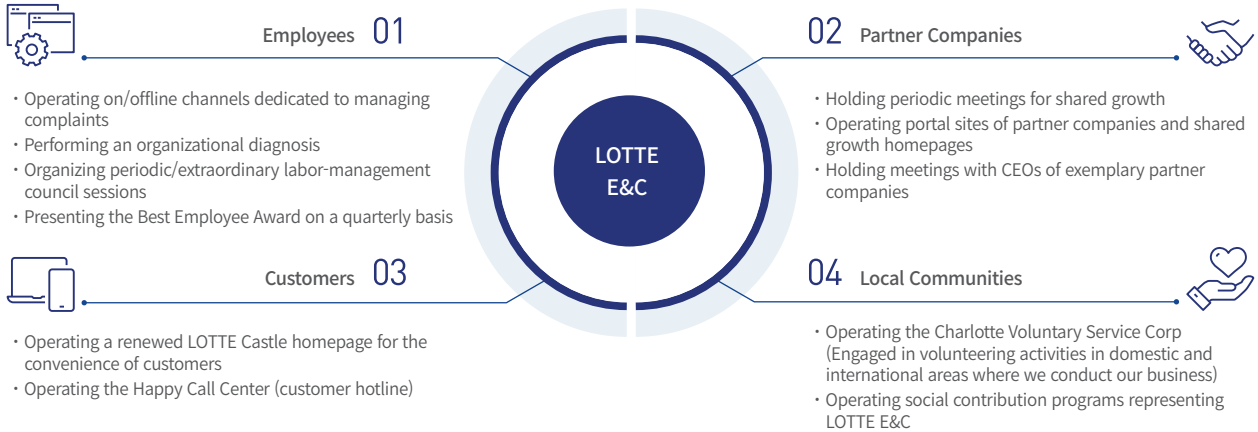


Becoming a ‘Global Leading EPC Contractor, Total Service Provider’

Stakeholders' Participation and Materiality Assessment

Stakeholders' Participation

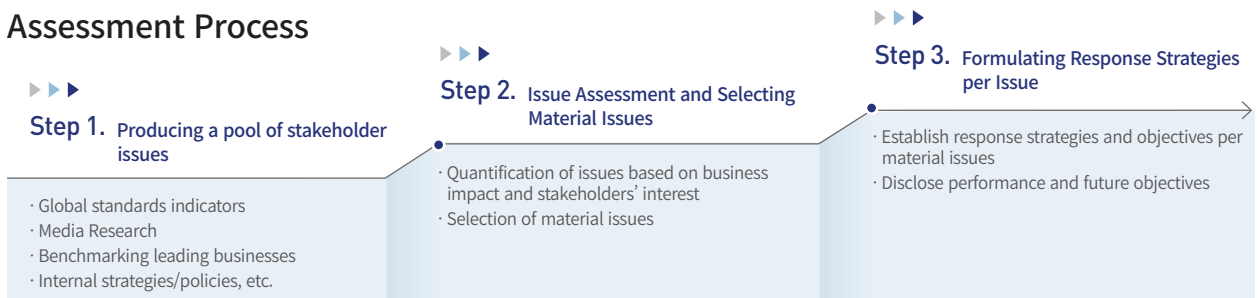
We operate a number of on/offline communication channels for different groups of stakeholders to gain insight on their expectations about major issues and positively reflect their opinions in our management activities.



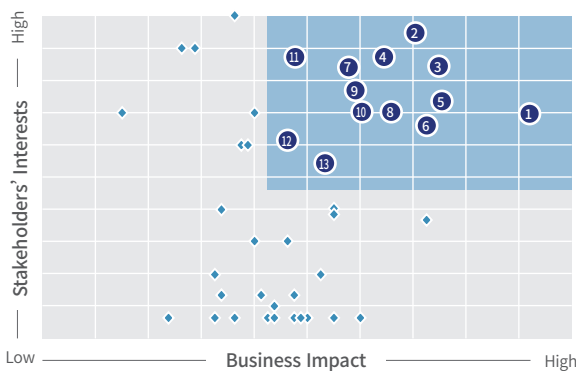
Materiality Assessment

Every year, we perform a materiality assessment in order to identify and select the issues that our stakeholders consider important. In 2019, we established a pool of stakeholder issues based on the requirements of global standards, such as the Global Reporting Initiative (GRI), a global standard for devising sustainability reports, as well as standards for corporate social responsibility (CSR), such as ISO 26000 and the UN's Sustainable Development Goals (SDGs). Then, we conducted a materiality assessment over a two-week period. Based on our pool of 45 issues, we selected 13 material issues as a result of the assessment. These consisted of media research, benchmarking of leading businesses, and analysis of internal strategies and policy issues, as well as internal/external questionnaire-based surveys. We intend to disclose the results of major activities carried out in 2019 concerning the selected issues in this sustainability report.

Assessment Process



Results of Materiality Assessment



Main Issues Category

No.	Main issues on 2019	GRI Standards Topic	Page
1	Systematic operation of social contribution activities (Social contribution, finding solutions to social issues, etc.)	GRI 413 Local Communities	Value Creation for the Local Community through Social Contributions 85p
2	Eco-friendly products and services (Green buildings, develop eco-friendly products, etc.)	GRI 301: Materials	Efforts for Clean Future by Eco-Friendly Approach 67p
3	Strengthen customer satisfaction activities (Enhance customer convenience and product quality, etc.)	GRI 417: Marketing and Labeling	Achieving Customer Satisfaction 75p
4	Addressing climate change (Greenhouse gas emissions, carbon offsets, carbon pricing, reduction of air-polluting materials, etc.)	GRI 305: Emission	Efforts for Clean Future by Eco-Friendly Approach 67p
5	Disseminate safety culture, enhance safety awareness, and perform proactive safety management activities	GRI 403: Occupational Health and Safety	Creating a Safety-First Corporate Culture 63p
6	Recruitment, work-life balance (Paternal leave, etc.)	GRI 401: Employment	People-Oriented Business 87p
7	Mutual growth and win-win cooperation (Financial / technical / HR development support, etc.)	GRI 414: Supplier Social Assessment	Assessment Win-Win Cooperation Partnership 81p
8	Brand and corporate image management	GRI 102: Governance	Achieving Customer Satisfaction 75p
9	Healthy governance structure (Launch relevant committees, directors' remuneration-related policies, the role of governance for risk management, etc.)	GRI 102: Governance	Corporate Governance 7p
10	Strengthen ethical management (Through the relevant education and campaigns)	GRI 205: Anti-Corruption	Ethical Management based on Principles and Trust 57p
11	Social contributions toward local community	GRI 413 Local Communities	Value Creation for the Local Community through Social Contributions 85p
12	Create direct economic results (Revenue, profit, etc.)	GRI 201: Economic Performance	Mega Trend, Beyond Customer Expectation, Economic Performance 95p
13	Enhance risk management	GRI 102: Governance	Risk management 8p

Sustainable Development Goals (SDGs)

SDGs (Sustainable Development Goals)

In 2015, at the UN General Meeting, the international society agreed to adopt 17 Sustainability Development Goals (SDGs) to ensure a sustainable future and mankind's prosperity. Composed of 17 goals and 169 targets, the SDGs call for sustainable efforts in all areas of the economy, society, and environment, and they are oriented toward "human-centered" values.

LOTTE E&C agrees with this global endeavor and will try our best to follow these efforts. We will contribute to a sustainable future by minimizing the negative impact of our business activities on society and developing a wide range of projects and programs with consideration for the implementation of SDGs and corporate strategies.



LOTTE Group's SDGs Implementation Directions

LOTTE E&C, based on the 17 SDGs in association with our affiliate companies of the LOTTE Group, set the direction to execute the Group's SDGs, and also set women/children, the environment, and mutual growth as three themes.

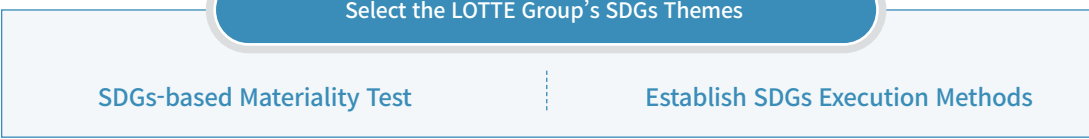
Guided by these directions, LOTTE E&C, as a sustainable company, intends to further fulfill its obligations as a corporate citizen that contributes to building a sustainable society.

LOTTE Group's SDG Themes

Analysis of LOTTE Group's social value activities by subsidiaries



Select the LOTTE Group's SDGs Themes



Theme 1
Caring LOTTE
 Women & Children

Goal 3 Good Health and Well-being
Goal 4 Quality Education
Goal 5 Gender Equality
Goal 8 Decent Work and Economic Growth

Theme 2
Green LOTTE
 Environment

Goal 6 Clean Water and Sanitation
Goal 8 Decent Work and Economic Growth
Goal 9 Industry, Innovation, and Infrastructure
Goal 11 Sustainable Cities and Communities
Goal 12 Responsible Consumption and Production
Goal 13 Climate Action

Theme 3
Together LOTTE
 Mutual Growth

Goal 1 No Poverty
Goal 2 Zero Hunger
Goal 3 Good Health and Well-being
Goal 4 Quality Education
Goal 6 Clean Water and Sanitation
Goal 8 Decent Work and Economic Growth
Goal 9 Industry, Innovation, and Infrastructure
Goal 11 Sustainable Cities and Communities

53

54

LOTTE E&C's SDGs Execution Activities

In the perspective of LOTTE Group's SDGs themes : 'Green LOTTE (Environment)' and 'Together LOTTE (Mutual growth)', LOTTE E&C conducts its design and procurement activities by considering the environment. We also have social contribution activities that leads to the sustainable development of the local communities. Through these activities, we seek to achieve the 11th Goal of SDGs : Sustainable Cities and Communities.

Green Design and Purchase of Eco-Friendly Materials

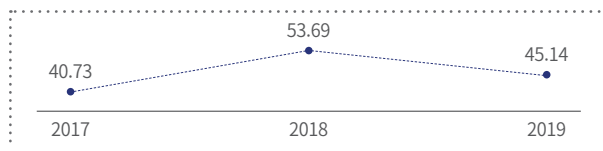


SDGs Target 11.6

By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

LOTTE E&C takes eco-friendly factors into account across all phases of a project: design, construction, and maintenance. Since 2013, LOTTE E&C has consistently been awarded the Green Building certification for its contributions to reducing energy consumption and environmental pollution. In 2019, the company received the highest rating for LOTTE Caste Gold Park IV in Geumcheon. Through its environmentally friendly designs, the company contributes to suppressing global warming and reducing the consumption of energy and water resources. A case in point is Jamsil's LOTTE World Tower, which relies on renewable energy source such as solar and wind. We also installed a sewage recycling system in Pohang City, which supplies around 100,000 tons of industrial water each day in the form of purified sewage water. Moreover, by the end of 2023 we plan to complete the construction of a facility that will generate biogas and electricity through the treatment of food waste.

Procurement Records for Certified Eco-Friendly Products [unit : USD million]



LOTTE E&C is taking the lead in protecting the environment by procuring certified eco-friendly products every year. Moving forward, LOTTE E&C will construct sustainable buildings and cities, with fewer negative environmental impacts, through the active utilization of eco-friendly and future energy technologies that are leading green growth.

Eco-friendly Certification of Main Projects

Project	Main Activities	Achievements
LOTTE World Tower	· Installed renewable energy generators for solar, wind and other power	· Obtained the highest grade for G-SEED · Obtained Gold for LEED
Sewage Recycling Facility in Pohang	· Recycled treated sewage water as industrial water · Applied advanced water-treating technology using membranes	· Secured 100,000 tons of eco-friendly industrial water per day
Installation Project for Generating Bioenergy from Food Waste in Changwon	· Generates biogas by treating food waste · Produced electricity using biogas	· Generates 12,700 m ³ of biogas per day · Produces 24.0 Mw of electricity per day

Love House of Dreams and Hopes



SDGs Target 11.1

By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

'Love House of Dreams and Hopes' is a volunteering program run by LOTTE E&C to improve housing situations for low-income families and the environments of social welfare facilities. Through this program, the company is helping members of local communities enjoy the right to live in adequate housing as well as supporting the provision of basic social services.

Love House volunteer activities began in 2012, and by the end of 2019, volunteer activities had been conducted at a total of 66 facilities, at 31 locations in Seoul and 35 in Busan.

In 2019, around 30 employees from each region participated in volunteer work in Geumcheon-gu and Dongdaemun-gu in Seoul and Nam-gu in Busan that involved renovating facilities for the disabled, local child care centers, and houses of low-income families. They replaced outdated flooring, walls and ceilings in welfare centers and provided washing machines, refrigerators and air conditioners to each unit on top of conducting environmental improvement work, assisting residents in leading more comfortable lives.

In 2020, the company plans to select and support welfare centers and low-income households in Geumcheon-gu and Dongdaemun-gu in Seoul and Nam-gu in Busan.

LOTTE E&C will fully utilize the characteristics of the construction industry and the expertise of its employees in resolving the problems of society and creating value from mutual growth.





Respect

55

56

LOTTE E&C abides by the principles and realizes sustainability based on trust with all stakeholders.

- 57 Ethical Management based on Principles and Trust
- 61 Establishment of Compliance
- 63 Creating a Safety-First Corporate Culture
- 67 Efforts for Clean Future by Eco-Friendly Approach
- 71 Creating Future Value through Technological Development
- 75 Achieving Customer Satisfaction
- 81 Win-Win Cooperation Partnership
- 85 Value Creation for the Local Community through Social Contributions
- 87 People-Oriented Business



01

Ethical Management based on Principles and Trust

Importance of the Issue

By stressing ethical management, a business commits itself to the transparent and fair execution of its operations, regards business ethics as its top priority, and focuses on its corporate social responsibility (CSR). In current international transactions between businesses, the importance of ethical management is being emphasized more than ever before. National governments, along with international organizations such as the ISO, OECD, and UN, have welcomed such a trend and continued to formulate their guidelines and policies so as to conduct ethical management. Under such trends, businesses should engage in ethical management to foster a sustainable and healthy social culture, rather than merely focusing on stakeholders' expectations and demands.

We have adopted ethical management as the very basis of our business operation and laid the groundwork to apply such objective into practice systematically and consistently. Ethical Management unit, dedicated to this need, is carrying out diverse activities, including employee education and promotional campaigns. We are striving to make our business a clean and healthy one.

57

58

Strengthening Ethical Management

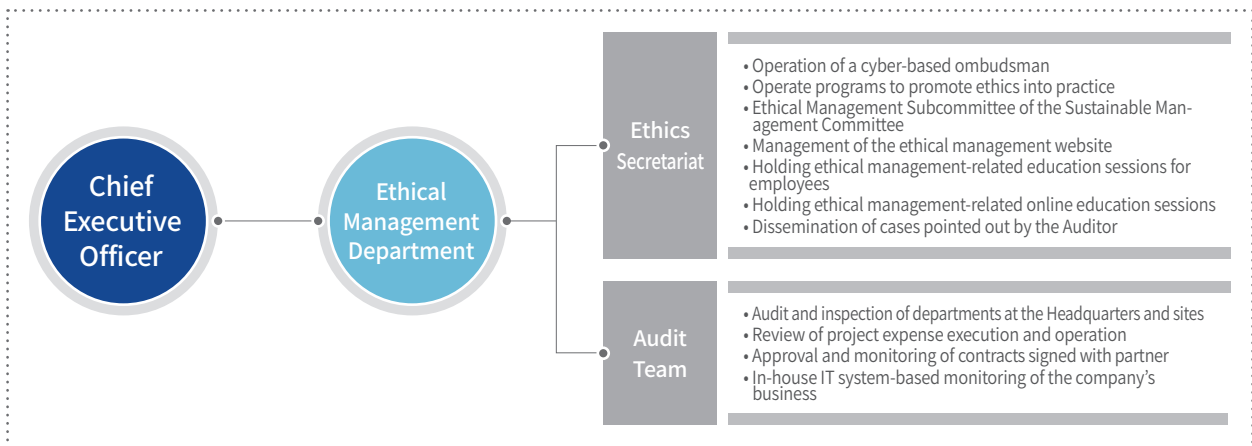
Direction to Promote Ethical Management

We are striving to lead ethical business based on principles and trust to fulfill our social responsibility as a member of the local community. We have established business strategies to comply with the relevant domestic regulations and international ethics standards, and to cope with the heightened social interest in ethical business. Furthermore, we are upgrading our system to promote ethical management, internalizing our employees' sense of ethics, and invigorating our channels of ethical management-related communication.

Ethical Management Units

We have two units dedicated to ethical management, namely the Ethics Secretariat and the Audit Team, both of which report directly to the Chief Executive Officer. The Ethics Secretariat is responsible for disseminating the company's ethical management-related guidelines and organizing preventive activities including the relevant education for employees. The Audit Team verifies whether the relevant laws and regulations are being complied with and carries out activities to improve ethical management-related matters. It is mostly composed of supervisor-level employees who have accumulated experience at construction sites as specialists with diverse backgrounds.

Ethical Management Units and Major Job Functions



2019 Key Performances

Ethical management evaluation score



96 points

Number of post-audit improvement cases



116 cases

Number of employees that attended education sessions on ethical management



3,360 employees

Number of reports through the cyber ombudsman channel



870 cases



Enhancing the Ethical Awareness of Employees Through Education

The LOTTE Employees' Code of Ethics and the LOTTE Group's Ethical Management Q&A BOOK



We adopted the LOTTE Code of Ethics in 2000, and announced a revised LOTTE Employees' Code of Conduct in 2014. Two years later, we published the LOTTE Group's Ethical Management Q&A BOOK, which contains detailed guidelines on the Company's Code of Conduct. In 2020, we once again reestablished and distributed the LOTTE Code of Conduct.

In 2015, we began holding educational sessions for employees on the LOTTE Employees' Code of Conduct by linking it with LOTTE E&C's behavioral standards and regulations, which are the company's ethical regulations. As for local employees recruited at work sites outside of Korea, relevant education is carried out under the supervision of the branch manager. In 2020, we reestablished and distributed LOTTE E&C's behavioral standards and regulations in accordance with the revision of the LOTTE Employee's Code of Conduct.

In 2019, all 0000 employees of LOTTE E&C received training on ethical management and we are continuing to operate various training sessions on ethical management that is specific to each job, position and level.

The Five Main Themes of LOTTE's Code of Conduct

The Trust of our Customers

- 1. Provide products and services of the highest quality**
Be the number one brand for our customers.
- 2. Honest marketing**
The easiest way to gain customer trust is through honesty.
- 3. Customer information protection**
Customer information is extremely important to us.
- 4. Brand protection**
You are the brand that represents LOTTE to our customers.

The Trust of Our Partners

- 1. Compliance with the Fair Trade Act**
Fairness and trust allow us to work as one team with our partners.
- 2. Respect for business partners**
Partnerships grow stronger when they are rooted in mutual trust.
- 3. Fair competition**
Fair competition makes us stronger.
- 4. Legal information collection**
Information must be gathered in a legal manner.
- 5. Anti-corruption**
Every favor comes with a price.

The Trust of LOTTE Employees

- 1. Fair opportunities and fair treatment**
We make a strict distinction between public and private affairs and provide fair opportunities.
- 2. Mutual respect among members**
Everyone is a cherished member of our family.
- 3. Gender equality**
LOTTE creates happy homes and fair jobs.
- 4. Safe working environment**
Everything begins with safety.
- 5. Asset protection**
The company's assets belong to all LOTTE employees.
- 6. Protection of intellectual property**
We need to protect our valuable intellectual property.
- 7. Prevention of information leakage**
Negligence can lead to information leakage.

The Trust of Our Shareholders

- 1. Shareholder value**
We pursue long-term shareholder value.
- 2. Prevention of conflicts of interest**
We consider the benefits of stakeholders as a group.

- 3. Transparency in accounting**
Honest reporting highlights our efforts and passion.
- 4. No insider trading**
We do not allow unfair gains made with internal information.

The Trust of Society

- 1. Environmental protection**
We are only borrowing the environment from future generations.
- 2. Social value creation and social contributions**
It is our utmost pleasure to share our profits with the society from which we earned them.
- 3. Respect for human rights**
Love and respect for all people is an important value of LOTTE.
- 4. Respect for cultural diversity**
Only when we respect others can we win their respect in turn.
- 5. Legal compliance in all countries**
We respect the laws of each country and strive to reduce crime.
- 6. Separation of politics and the economy**
Only when we separate politics from the economy can each fulfill its role to the fullest.

Ethical Management Education for Different Levels of Employees



59
60

Diagnosis of Ethical Management and Assessment of Practices

Based on the status of each of the four themes of LOTTE's Code of Conduct, the company assesses its ethical management level and works on the improvement measures that are identified. In 2019, LOTTE E&C received 96 points for its ethical management, having seen a continuous improvement from 94 points on the first diagnosis in 2015.

Components of the Ethical Management Practice Program



Examples of Ethical Management Quizzes



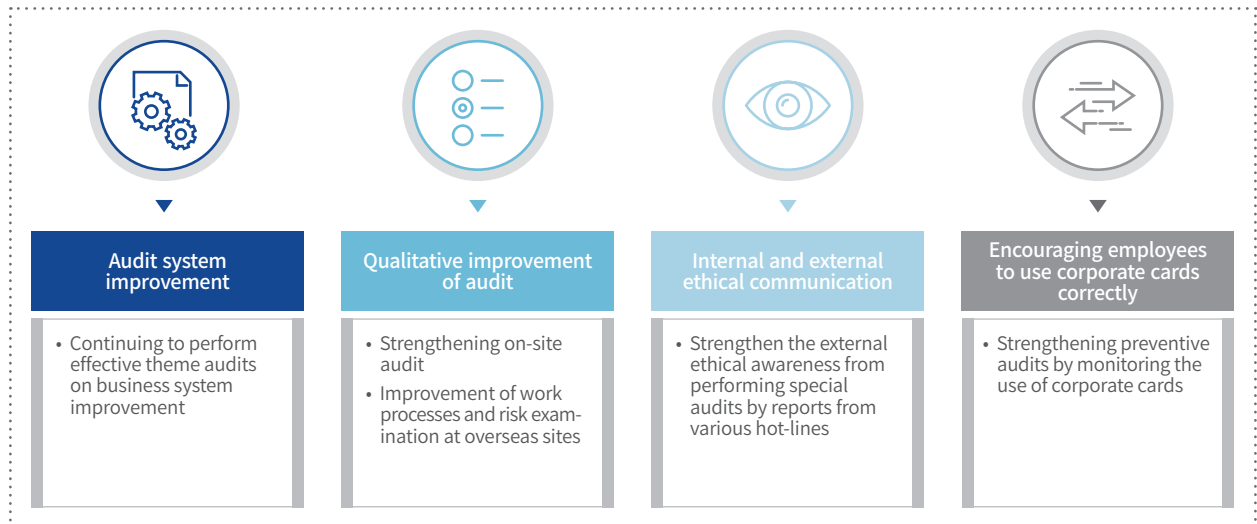
Whistleblower Hotline

We encourage our external stakeholders to blow the whistle on unethical practices through our on/offline hotline. In principle, all matters received will be responded within 10 days, and the whistleblower's anonymity will be guaranteed and fair investigation will prevent any groundless slander. We also print the website address of our cyber ombudsman on employees' business cards to encourage them to take part in the effort to prevent unethical acts and to report actual cases without hesitation.

Strengthened Audit Activities

We reinforce audit activities such as regular audits and theme audits to check the fairness and ethics of our work. Through these activities, we have improved the work system and the quality of our audit work, and strengthened our employees' ethics. In addition, we monitor the use of corporate cards to create a proper corporate card using culture. In addition, we invite an instructor specializing in ethical management to introduce Lotte Engineering & Construction's ethical management policies to executives and employees of partner companies and disseminate measures for ethical and shared growth.

Major Achievements of Audit Activities



Strengthening Ethical Management of Supply Chain

Ethics Pledge and Education for Partner Companies

As the supply chain plays an increasing role in corporate management, we are implementing the ethics pledge program for partner companies to raise the ethics awareness of our employees. We have written an ethical management pledge of commitment to help our partners prevent unethical behavior and contribute to the creation of a healthy corporate ecosystem.



Ethical Management Evaluation of Partner Companies

Since 2018, we have established ethical management indicators in our regular evaluation system to encourage ethical management of our partners. In the process of auditing partner companies, we are deducting unethical behavior and conducting an objective evaluation based on the numerical results.

Future Plans

Direction of Ethics Management

LOTTE E&C will continue to expand its ethical management infrastructure to become a global ethical company. In order to be recognized in the global management environment, we will improve our ethical management system and practice solid corporate ethics to become trusted by stakeholders.

Fostering an Ethical Management Culture

In order to reinforce employees' awareness of ethical management and induce active interest, we will diversify ethics education and send out letters to our partners to encourage ethical management culture at the supply chain level.

In addition, by checking the current status of ethical management in all aspects of the company's business, we are continuing to eradicate unethical behavior such as harassment and sexual harassment as well as abuse and corruption. Furthermore, we will reinforce the preventive inspection system for unethical behavior by operating various auditing systems such as on-site audits, department theme audits, and guidance audits.

02

Establishment of Compliance

Importance of the Issue

Compliance is an internal function for companies to conduct healthy business activities in accordance with social norms. It is a social commitment beyond the legal element, and strict compliance is recognized as an essential for corporate sustainability. In particular, due to the rapid globalization of the international community, the scope of compliance is gradually expanding, and the social consensus on the eradication of corporate injustice and corruption is increasing.

LOTTE E&C strictly complies with social rules and promises by establishing a compliance system, and strives to create a culture where employees can maintain compliance on their autonomy through various related training.



61
62

Strengthening the Compliance System

Strengthening the Compliance System

LOTTE E&C's CEO delivered the company's compliance message in 2019 and disseminated ethical awareness to all of its employees by having them sign the Compliance Charter. The company is putting its efforts into abiding by social regulations and commitments in all its business activities through the establishment of an internal management system and the reinforcement of employee training.

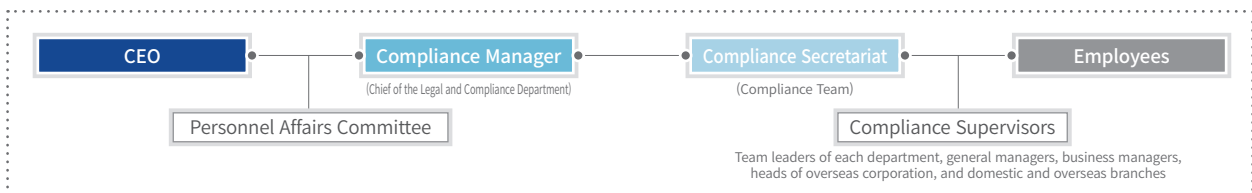
Establishing Compliance Systems for Subcontractors and Internal Transactions

In 2019, we constructed a compliance system for all duties related to subcontractors and internal transactions. We identified risks by researching relevant job procedures and interviewing designated managers, and based on the results, we established a monitoring system and created and distributed work guidelines. In particular, we are exerting our efforts to stabilize a culture of compliance and internalize compliance management by assessing subcontractors at all sites and carrying out improvement measures.

Appointment of Compliance Officer

The compliance officer is appointed with the approval of the board of directors, and assigned the role of general manager of the compliance office. The compliance officer has the actual authority and responsibility for the effective operation of the compliance program. Also we appointed the site managers of all departments and general managers of all sites as the compliance officer to manage the company's compliance program.

Major performance tasks



Establishment of Legal Violation Monitoring System

The most important part of operating a compliance program is preventing and monitoring violations of law. In order to allow the compliance office to monitor violations of law on a regular basis and from time to time, we have established the basis for compliance regulations and a compliance reporting system that allows anonymous reporting from both domestic and overseas. The compliance office reports key issues such as monitoring activities and performance to the CEO and the board of directors more than once every half year.

2019 Key Performances

Ethical Management Compliance Team



Expanded Operation of Compliance Programs

Established a Compliance System for Subcontractors and Internal Transactions



Number of employees* who have received compliance education



2,999
employees

* Daily workers included

Newly established a TFT for subcontractor improvement



Sanctions for Violation of Law

In order to foster a compliance culture, reasonable sanctions are necessary. In the event of a violation of compliance-related laws and regulations, we have established sanctions so that appropriate countermeasures can be taken. We will also operate the reward system according to the result of implementing relevant laws to increase the effectiveness of the system.

Raising Employees' Awareness of Compliance

Compliance Training

All employees must be trained on the Anti-corruption laws, and new employees are trained on overall compliance-related matters. We raise employees' awareness on compliance and provide training by job-type and position to prevent risks related to legal violations. In 2019, we conducted special training sessions at all subcontractor work sites and a total of 2,999 employees took part in online lectures to learn about anti-corruption laws.

Division	Contents of education	Educatees	No. of employees trained
Periodic education	Compliance	New recruits	68
	Domestic and international anti-corruption laws	All employees	2,999
	Field managers and public affairs officers at subcontractors	Employees responsible for subcontracting work	865
	Education on fair trade law	Employees responsible for work related to fair trade	49
Occasional education	Overseas anti-corruption laws	Employees responsible for overseas work	28
	Internal training related to fair trade laws for business consolidation and diagnosis	Business managers	22
	Field managers and public affairs officers at subcontractors	Field managers and public affairs officers	80

Future Plans

In 2020, we plan to investigate the risk of violations of laws related to subcontracting, fair trade and human resources, improve our work procedures & systems, and distribute work manuals and checklists so that employees can identify and manage risks related to such violations in advance. In addition, our compliance secretariat will conduct regular inspections on two or three sites every month to reinforce risk prevention and compliance among our subcontractors. Furthermore, we plan to conduct compliance training four times a year along with regular training for each job and position.

03

Creating a Safety-First Corporate Culture

Importance of the Issue

Workplace safety is a prioritized value that must be respected during corporate operations. Safety accidents not only have a significant impact on corporate management, but also directly affect the lives of workers. In particular, the construction industry has a high risk of accidents due to the nature of the industry, so preemptive safety management of construction sites is important.

LOTTE E&C is doing its best to prevent safety accidents at the construction site by establishing a thorough safety and health management system and establishing a corporate culture that prioritize safety.



63

64

Safety Management System

Organization of Safety and Health Management

LOTTE E&C operates the 'Safety and Health Management Department' as the organization under direct control of the CEO to establish a company-wide safety and health strategy, establish a safety and health culture, and prevent safety accidents at construction sites. The Safety and Health Management Department, which also participates in the safety and environment management sector of the Sustainability Management Committee, identifies domestic and international policies and construction industry trends in the field of safety and health, checks and evaluates the safety and health level of construction sites, and in charge of training employees in related fields.

Establishment of a Safety and Health Management System

LOTTE E&C has acquired KOSHA18001 and ISO45001 safety and health management system certifications, and operates a risk assessment system to manage risk factors. In addition, we are striving to prevent major accidents by establishing a safety management system for high-risk work in collaboration with related departments. Each month, the 'High Risk Safety Sharing Meeting', which consists of executives and employees, convenes to set safety inspection processes and operate the work safety inspection system. As a result of these efforts, LOTTE E&C recorded a mortality rate of 1.39 in 2019, below the average of 1.72 in the construction industry.

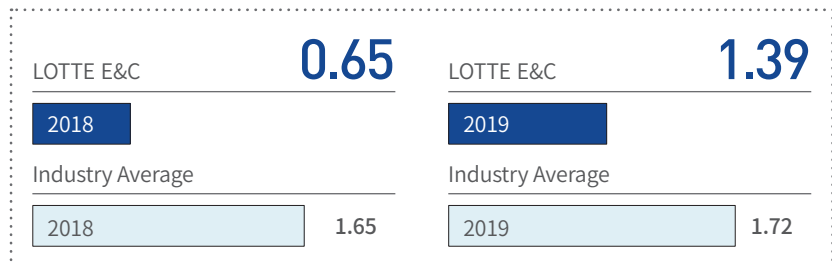
Current mortality rate per 10,000 workers (unit: 1/1,000*)



Industrial Safety and Health Committee

Current mortality rate per 10,000 Workers (2019)

[Per 10,000 workers, unit: 1/1,000]



Every quarter, the Industrial Safety and Health Committee, hosted by the site manager, listens to employees' safety and health-related suggestions. The committee consists of equal numbers of employer and employee, and manages the safety and health of employees. In addition, the committee makes various efforts to establish a safety culture, including accident prevention activities, performance management of on-site safety management operations, and discussions on improvement measures.

2019 Key Performances

Current mortality rate



1.39 ^{0/000*}

* Per 10,000 workers

Conducted on-site safety assessments



1,158

assessments

No. of Employees who received safety education



3,338
employees

* Including employees of partner companies



Proactive Safety and Health Management Activities

Strengthening the Risk Evaluation System

LOTTE E&C operates various inspection systems to prevent safety accidents at construction sites, and is doing its best to strengthen the safety and health capabilities of employees.

The risk assessment system has been strengthened by clarifying the criteria for selecting risk factors of high-risk work and by subdividing management criteria by risk grade. In addition to the existing qualitative evaluation methods, quantitative evaluations based on the frequency and intensity of accidents have been added to enhance the objectivity and reliability of risk assessments.

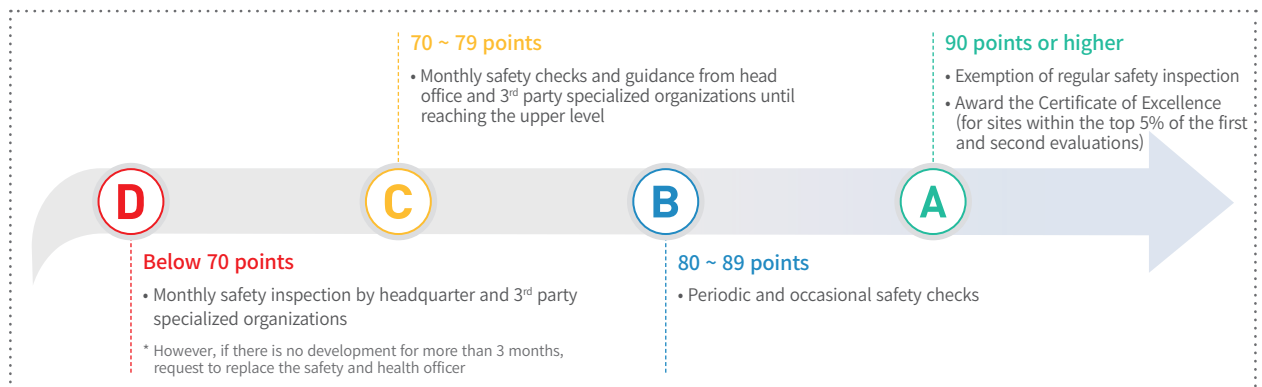
Enhancing the On-Site Safety Management System

We are working to prevent safety accidents by improving safety inspections at high-risk work sites. In 2019, we reinforced advanced preventative measure for on-site management during vulnerable periods, such as when ice is melting or work is more active. By establishing collaborative systems between our R&D center, we have enhanced technical guidance inspections and are striving to prevent large-scale disasters through joint inspections at high-risk sites.

Operation of the Safety Street Light System

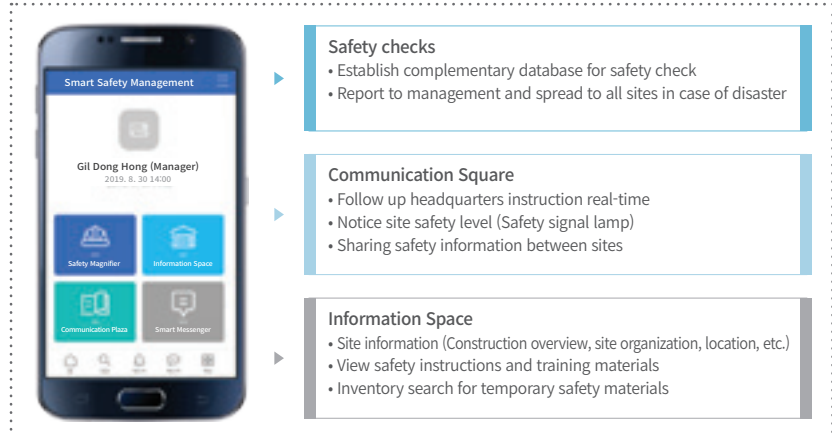
The Safety Street Light System was introduced in 2016, and the safety level of the site is evaluated based on three criteria: system, administration, and implementation. The results of the evaluation of the safety level at the site are expressed in colors by grade so that employees can grasp intuitively.

Safety Street Light Scoring System



Operation of the Mobile Safety Management System

We operate a mobile safety management system to timely detect and report on-site risk factors. In addition, we have made it possible for anyone to suggest ways to improve the problem and to improve work efficiency by sharing safety information between site safety managers in real time.

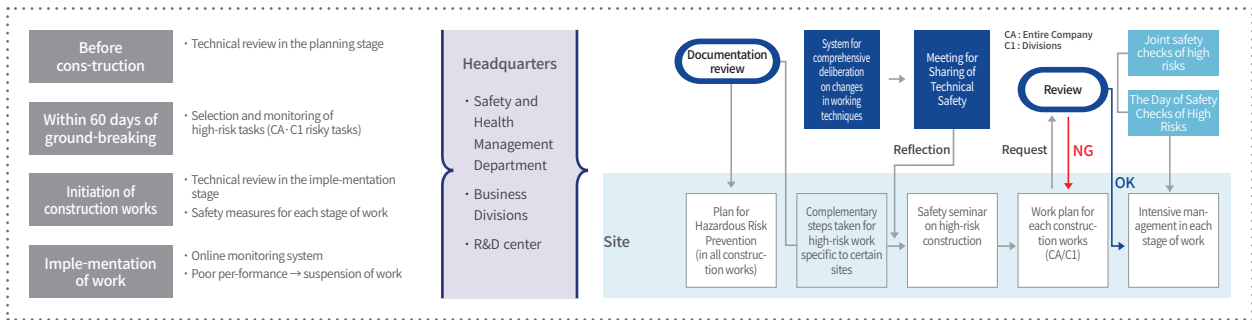


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Establishing the Safety Management System for High-Risk Tasks

Through departments, are a dedicated safety management system for phase of construction and serious . 2019, held 'High Day' 46 risk implement safety measures stage. addition, have strengthened for risk during periods by performing 68 joint with the R&D center construction departments.

Key Management Procedure



Strengthening Equipment Safety Management Activities

We are reinforcing our Headquarters personnel dedicated to safety and health and designating equipment experts for each base site in each region to reinforce the management of seven high-risk pieces of equipment, including tower cranes and navigators. In addition, we operate a daily monitoring system for high-risk equipment. We also manage our tower crane installation and dis-assembly teams according to experience to ensure in advance that we dispatch the most skilled professionals. In 2019, we created inspection videos for five major types of equipment, such as excavators, to strengthen on-site equipment inspection capabilities. Additionally, we are making efforts to prevent the toppling or overturning of equipment by attaching alarms on any equipment with a boom lift, such as mobile cranes and pump cars.

Adoption of Excavator Anti-Collision System

When workers approach dangerous areas around the excavator, the alarm rings to alert drivers and workers.

Health Management for On-Site Workers

To enhance our level of health management for on-site workers, we have appointed a health manager to each site with an amount of contracted work above a given level (USD 69 million). We also provide coaching to health managers with less than three years of experience as a way of upgrading our workforce. We are building a health management system by checking on the provision of adequate ventilation at workplaces, managing the working environment and identifying harmful gases. In 2019, we strengthened chemical management by distributing safe management guides on hazardous substances. We also established safety standards for particulate matter for employees working outdoors as well as separate response measures for each heat wave level, thereby improving the working environment.

Status of Employees Attending Safety Education (2019)



12 courses



Including employees of our partner companies

3,338 attendees

Enhancing Safety Education

We hold educational sessions on safety management designed to raise our employees' awareness of safety issues. These sessions take the form of discussions and practical exercises, with a focus on identifying risk factors and building up our employees' responses to danger. In 2019, we conducted educational sessions for engineers and safety-related employees based on five educational topics that we developed, which included equipment-related safety management, thereby raising their understanding of and expertise on safety management systems. For 2020, we plan to develop training content for overseas workers and expand customized training.

Establishing a Safety-Oriented Culture

Declaring the Internalization of Safety Culture in our Daily Lives



We announced our commitment to expand safety culture as an integral part of our daily lives at the Management Strategy Meeting, which was attended by high-ranking executives, including the president.

During the session, we declared safety to be the most important value of our corporate management. This declaration has been repeated at the meeting each year since 2015. In 2020, the session was held under the title 'I Respect U', displaying the top management's firm commitment to spreading a corporate culture based on mutual respect and safety.

Health and Safety Management Meeting

Every month we hold the Health and Safety Management Meeting led by the President to check the results of the health and safety management activities, share information on future plans, and discuss matters to be improved.

Implementing 'Safety Communication Day'



In 2016, we established 'Safety Communication Day' to invigorate safety-related communication between the Headquarters and work sites. On this day, directors and team leaders from Headquarters pay visits to work sites to provide support and listen to the opinions and complaints of workers.

In 2019, we handled 24 recommendations made on-site through the Day of Safety Communication sessions, thus giving further support to site-centered safety management activities.

Winning Presentation on Best Practices of Safety Management



At the 52nd annual session for presenting cases of best practices in safety management, sponsored by MOEL (Ministry of Employment and Labor) and KOSHA (Korea Occupational Health and Safety Agency) held during the 'Week for Emphasizing the Importance of Industrial Health and Safety', we won the Grand Prize in the category of Health Management, the Best Award in the categories of Safety Management and Honorary Industrial Safety Supervisor, and the Excellence Award for Safety Management.

These achievements were a direct result of our headquarters' provision of continuous support in education and PR and revitalization of the movement for spreading the safety culture. We will continue to promote this movement and make our unique safety culture a part of our brand.

'I Respect U' Campaign on Safety Culture

We have been conducting a campaign unique to our company that is aimed at spreading a culture of safety to cement safety as an integral part of our daily lives. Employees are required to share the safety slogan in their daily morning meetings to foster a culture of voluntary participation in safety-related efforts. Additionally, we are striving to enhance awareness of the importance of maintaining clean sites and to expand a safety culture of mutual respect by implementing appropriate titles and operating a clean zone.



04

Efforts for Clean Future by Eco-Friendly Approach

Importance of the Issue

Since the enforcement of the Paris Agreement of 2016, the international community has tightened its grip on environmental regulation. Under such circumstances, global investors consider environmental factors in priority of the project evaluation. It has become a matter of common interest for all countries around the world to take steps to minimize environmental impact and lead others in the effort to maintain ecological systems. All countries feel that it is their duty to act in this way for the benefit of future generations.

The Safety and Environment Management Subcommittee of our Sustainable Management Committee plays a key role in putting the goal of environmental management into practice. We strive to minimize environmental impact through eco-friendly products and technologies, and apply and utilize eco-friendly technologies from the early stages of construction projects throughout the entire process.

67

68

Environmental Management System

Units assigned to Promote Environmental Management

Our Safety and Environmental Management Subcommittee has been assigned the task of checking global trends in environmental management and coming up with proactive measures for dealing with environmental issues. The subcommittee also handles matters relating to the establishment of our environmental management strategies and putting them into practice, and to environmental risk management.

Establishment of an Environmental Management System (ISO14001 Certification)

Having been granted ISO14001 certification in 1996 we are continuing to improve our foundation for promoting environmental management. In 2017, we duly took steps to comply with the revised requirements of the certification. In 2019, renewal audits were conducted, and in 2020, post-audits were conducted accordingly, and we have maintained the certification to date.

Realization of Eco-friendly Construction Sites

Eco-friendly Design

From the beginning stages of a construction project, we are considering to obtain a Green Building Certification in terms of building materials and other resources, design, structure and function. We are also striving to recruit more LEED AP (Leadership in Energy and Environmental Design) Accredited Professionals in an effort to strengthen our ability to design eco-friendly products.

The Role of the Safety and Environmental Management Subcommittee



2019 Key Performances

GHG Emissions



Achieved Target Reduction Rate (8.8 %) (Compared to BAU*)

44,414 tCO₂eq

* BAU (Business As Usual) refers to the total estimated amount of greenhouse gas that will be emitted if no steps are taken to reduce greenhouse gas emissions



Procurement Records of Certified Eco-friendly Products



USD **45.14** million



Status of Major Projects that Have Earned the Green Building Certification

Division	Projects	Certification grade	Date of certification
Housing Works	Gileum New Town LOTTE Castle Golden Hills	Evaluated as 'Great' in the main Green Building Certification	Jan. 29, 2019
	Gyeonghugung LOTTE Castle	Evaluated as 'Great' in the main Green Building Certification	Mar. 27, 2019
	Yongsan LOTTE Castle Center Foret	Evaluated as 'Great' in the main Green Building Certification	Apr. 22, 2019
	Geumcheon LOTTE Castle Gold Park TOWER 960	Evaluated as 'Excellent' in the main Green Building Certification	May. 29, 2019
	Seongbok Station LOTTE Castle Gold Town	Evaluated as 'General' in the main Green Building Certification	Jun. 18, 2019
	Doryang LOTTE Castle Gold Park	Evaluated as 'General' in the main Green Building Certification	Aug. 27, 2019
	Hannam nine One	Evaluated as 'Great' in the main Green Building Certification	Nov. 13, 2019
	Mullae LOTTE Castle	Evaluated as 'Excellent' in the preliminary Green Building Certification	Oct. 15, 2019
	Godeok 7 LOTTE Castle Beneluche	Evaluated as 'Excellent' in the main Green Building Certification	Jan. 22, 2020
	Seoul Mullae Rented Housing	Evaluated as 'Great' in the main Green Building Certification	Mar. 13, 2020
Building Works	Ailex Square	Evaluated as 'Superior' in the main Green Building Certification	Jul. 30, 2019
	Incheon port international passenger Terminal	Evaluated as 'Excellent' in the main Green Building Certification	Sep. 03, 2019
	LOTTE Academy	Evaluated as 'Excellent' in the preliminary Green Building Certification	Jul. 25, 2019

Status of Holders of the LEED AP Certification

Status of holders of the LEED AP certification



as of 2019 (Accumulative)

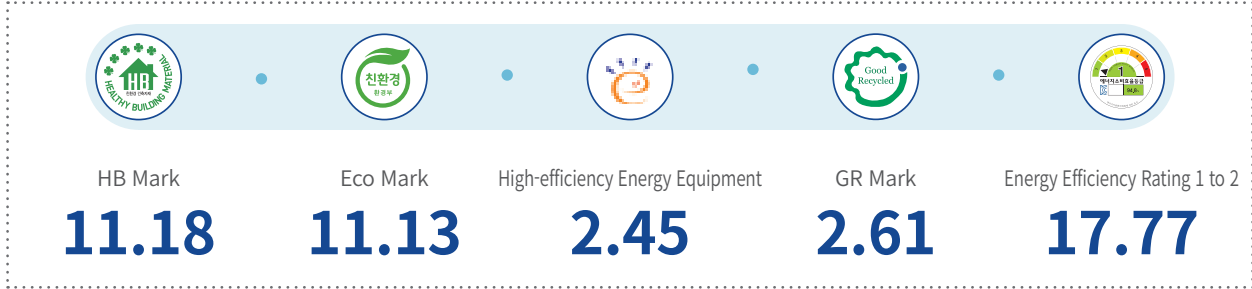
35 employees

Responsible Procurement

In 2009, we signed the 'Voluntary Agreement on Businesses' Green Procurement'. Since then, we have endeavored to purchase eco-friendly construction materials by exploring qualified suppliers.

Procurement Records of Certified Eco-friendly Products (2019)

[unit: USD million]



Construction Site Management with Environmental Impact taken into Consideration

In a bid to minimize our environmental impact on and around construction sites, we set up an environmental management plan immediately prior to commencing work at each site, check the environmental impact factors, and conduct an environmental impact assessment as required by the related regulation. We also carry out periodic monitoring of the relevant factors to reduce the environmental impact associated with air, water quality, noise/vibration, and waste resulting from our work.

Fine Dust Particle Management

We carry out diverse activities aimed to reduce the amount of flying dust particles generated in and outside our sites. Such activities include the operation of a facility for cleaning the tires of vehicles leaving the sites, sprinkling water on paths within/leading to the sites, making it mandatory to cover the cargo section of trucks and open yards where materials are stored, and the operation of street sweepers.

Water Resource Management

We operate water quality contamination prevention facilities to reduce the environmental impact of waste water. We also require our sites to reduce their water consumption in order to conserve water according to a set target.

Noise and Demolition Works Management

We have noises from equipment and machinery measured and reduced periodically and install moveable anti-noise walls where required. We also placed noise warning signs on the anti-noise walls at sites in densely-populated residential areas.

We comply with the legal standards to prevent the asbestos dust from scattering during the demolition work, and require workers to wear protective equipment and clothing.

Waste Management

We always monitor the status of waste generated at our sites under the relevant system, and ensure that construction waste is recycled according to the relevant guidelines. We also do all that we can to keep our sites clean, primarily by operating a separate waste material storage site.

Strengthening Environmental Inspections at Construction Sites

We are implementing regular environmental inspections at major work sites on an annual, quarterly and monthly basis. To be most effective, we reflect the results of these in our KPI, and confer awards on excellent performers while providing special education for under-performers. In 2019, we inspected a total of 68 sites and raised employee understanding of the importance of environmental management by simultaneously offering reviews and training to on-site and partner-company supervisors.

Environmental Management based on IT System

LOTTE E&C appoints supervisor-level employees to construction sites to check the operational status of their environmental pollution prevention system and to submit the relevant reports to the authorities. The employees are required to report the result of inspection on in-house ERP system. We regularly monitor the status of inspections at the head office level, and prevent environmental pollution through cross-checks between construction sites and the head office.

Encouraging Site Employees to Maintain a High Degree of Environmental Awareness

Environmental Management Campaign

We set the first day of each month as 'Environment Day' and have site employees engage in such activities as cleaning their sites and nearby areas. We also provide them with a handbook of environmental laws and working-level guidelines. In addition, we put up posters designed to draw site employees' attention to important environment-related matters such as the reduction of flying dust particles and greenhouse gas emissions, and the prohibition of unauthorized incineration, etc. We run campaigns designed to encourage employees to observe the environment-related laws, foster an environmental management culture, and maintain a high level of environmental awareness at all times.

Strengthening Environmental Management Education for Employees

We post environment-related educational materials on the in-house intranet for work site employees to see. These include best practices, cases that need to be improved, and cases appearing in the media. In 2020, we plan to conduct hands-on training on environmental management at least once a year for the environmental managers of each work site and continuously distribute educational materials, by quarter and by issue, to increase work site activities related to environmental management.

Awarded at the Construction Environment Management Contest

We are continuously submitting cases to and receiving awards from the Construction Environment Management's Leading Examples Contest, hosted by the Korea Construction and Environment Association under the Ministry of Environment and the Ministry of Land, Infrastructure and Transport. At the 14th contest, two of our sites were selected as best practices and were awarded by the Minister of Environment and Chairman of the Environment Corporation, and at the 15th contest, held in 2019, we were awarded the Chairman Award by the Construction and Environmental Association.

Work site-Centered GHG & Energy Management

We require each site to set its own target for energy savings and to abstain from unnecessary energy use. We are continuing our energy-reduction activities, such as through the installation of automatic lighting controllers and the replacement of existing lighting with highly-efficient LED lights at worksites. In 2019, we reduced GHG emissions by about 4,000 tons by replacing brown coal, a fuel used for maintenance after concrete is poured, with kerosene fan heaters.

Coping with the Special Act on the Reduction and Management of Fine Dust

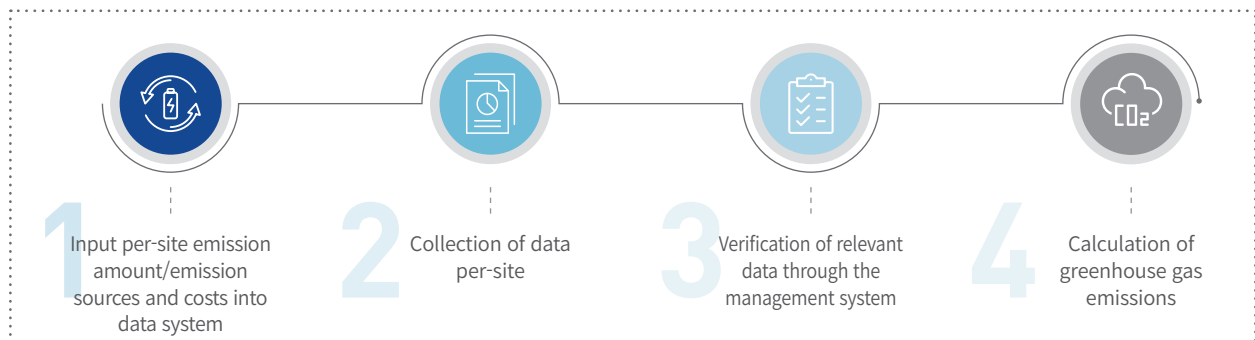


With the rise of issues related to fine dust and an increase in air quality inspections in 2019, we have distributed in-house guidance to work sites for responding to fine dust. We also share the content of the air quality inspections with all sites to prevent related violations. In addition, we conduct environmental support inspections and training during groundbreaking at construction sites to expand communication with work sites and reduce environmental risks. With the signing of an agreement for the voluntary reduction of fine dust with the Air Quality Management Division of the Ministry of Environment in December of 2019, we are proactively leading the way in reducing fine dust.

Responses to Climate Change

We operate the greenhouse gas · energy management system for more systematic management of greenhouse gas emissions, the amount of energy consumption, and sources of emissions.

Procedure for the Management System for the Amount of GHG & Energy Use



05

Creating Future Value through Technological Development

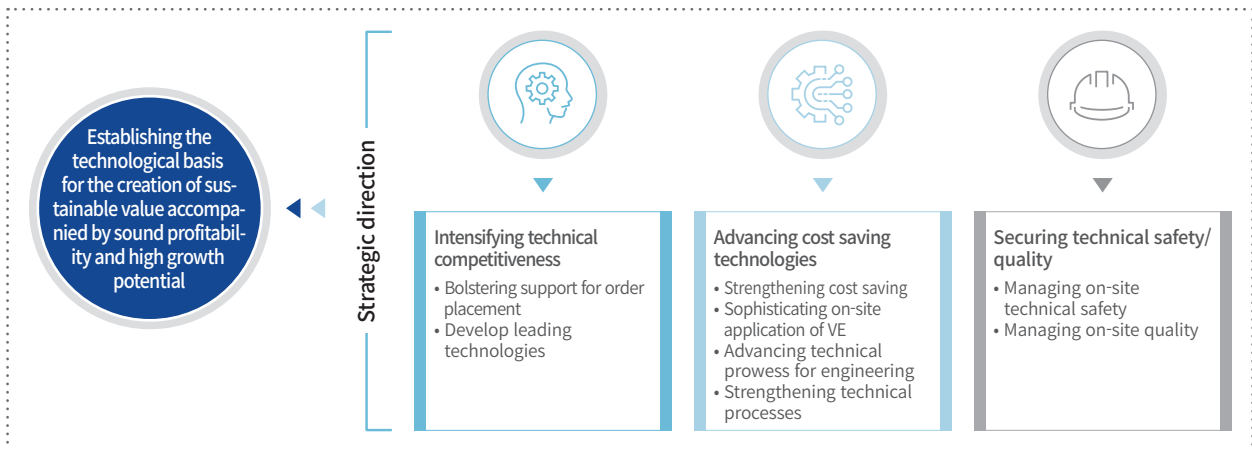
Importance of the Issue

A business can build its competitiveness and enhance its customer value through proactive technological developments and innovations based on such technological developments. The importance of R&D is being stressed more than ever before amid the ongoing changes in the global mega trend and the management environment. In 2019, the government announced its plan to innovate the country's construction industry, including an investment of 1 trillion won in R&D associated with the construction industry over a period of eight years (2020 ~ 2027) in recognition of its importance.

We are concentrating on the development of high-added value technologies in a bid to deal with the current mega trend in the construction industry and to keep ahead of the competition. We will also do our utmost to remain a sustainable business by dealing with the rapid changes in the business environment and by enhancing our ability to meet customers' requirements.

71
72

System for R&D Strategies



Technologies to Improve Customer Values

Site management platform for smart construction(Elloseum)

Elloseum, a site management platform for smart construction, integrates the cutting edge ICBAM* technology into construction sites and collects, operates, and controls all information starting from the construction stage using digital infrastructure. Since 2018, we have been developing and improving upon relevant technologies by participating in government-run tasks under the Ministry of Land, Infrastructure, and Transport, as well as performing our own tasks, and are striving to achieve efficient site management by using AI analysis on big data accumulated through Elloseum.



* ICBAM : IoT, Cloud, Big Data, AI & Mobile

2019 Key Performances

R&D Expenditure



USD
21.40
million

Sales to R&D Ratio

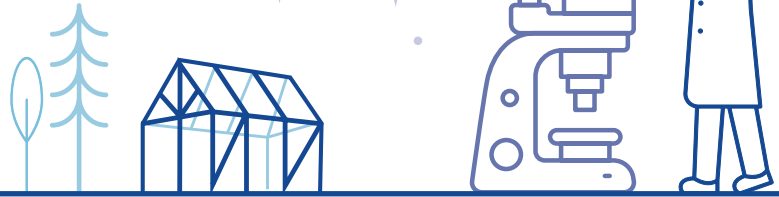


0.47 %

Number of Patents Acquired

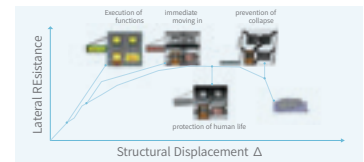


8 cases



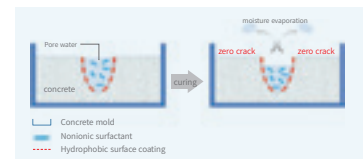
Apartment Performance-based Seismic Design Technology

We conducted earthquake simulations on our company's multipurpose buildings to review safety for each area, thereby establishing earthquake-resistant designs based on performance. Unlike conventional earthquake-resistant design, we utilized a detailed process that allowed for direct analysis and review of the resistance performance of buildings from the design stage. We plan to adopt this method at multiple sites to secure earthquake protection.



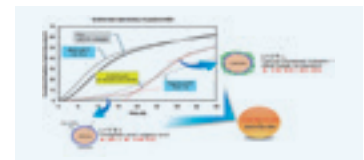
Advanced Crack Reduction Concrete

We have developed our own crack-resistant concrete that contains an advanced high-performance admixture which can reduce dry shrinkage by more than 160% compared to conventional concrete, and it can be applied to conventional concrete as well. This product can lower maintenance costs by reducing cracks, and minimizes cracking when applied to large-scale structures with concrete floors, which are vulnerable to plastic and dry shrinkage cracks.



Hydration Heat Reduction Concrete

There has been an increased quality problem with mass concrete components (THK=1.0 m or more) due to high heat of hydration as well as cracks. Accordingly, we have developed a technology that reduces maintenance costs by securing quality and reducing the heat of hydration of the concrete, even at high outdoor temperatures, through the use of organic-inorganic composite materials. We plan to apply this technology at work sites on the Indochina Peninsula (an extreme environment).



Tension Measurement Technology of Major Materials for Special Bridges

This technology that measures the strength of the steel rods stabilizing the construction of the supercapital of a bridge using the F.C.M (free cantilever method), and we attached EM (Elasto Magnetic) sensors that enable the calculation of force by measuring the way the magnetic force changes depending on the stress on the steel rods. We have completed verification of this technology by using it on section 2 of the Hyeonjoongsa Bridge on the Asan-Cheonan expressway and have applied for a patent for it.

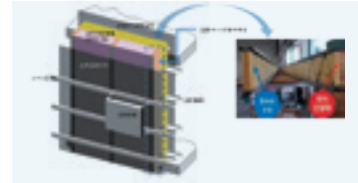




Technologies to Lead the Future Market

The Fireproof Dry Outer Insulation System

This is a fireproof outer insulation construction technology comprising an insulation frame with an inorganic insulator and a thermal bridge blocking function that reduces the thermal bridge breaks of conventional curtain walls. Technology to secure fire and rescue safety is undergoing a verification process as a new construction technology in 2020 and its application is expected to expand in the future.



Load Distribution Technique in the Foundation for Remodeling (Preloading and Connection System) *

LOTTE E&C has developed a load distribution technology for existing foundations through a pre-loading and connection system, as demand for retrofitting existing structures has increased with the permission of vertical extension remodeling and the boom in seismic retrofitting. We can achieve an optimized and stable design by utilizing micropiles, which excel in load supporting capabilities while easing the load distribution rate for additional weight on the existing foundation. We have verified the technology by conducting a large-scale field test on actual loads and applying it at work sites, and are planning to commercialize it.



* Preloading and Connection System: a technology to distribute the load of the existing pile and reinforced pile resulting from an increasing load

Double-Deck Tunnels in Urban Areas

To ensure safety in the construction of double-deck tunnels, an alternative solution to ground-level traffic in metropolitan areas, we have completed the development of reinforcement materials and the registration of patents to secure the stability of specific areas of the double-deck tunnels, such as underground branches, outflows, and adjacent tunnels (a total of four areas). We evaluated site candidacy through the pilot construction projects and completed a comparative analysis of constructability and economic feasibility. In addition, we have produced prototypes that improve the safety of reinforcement connections.



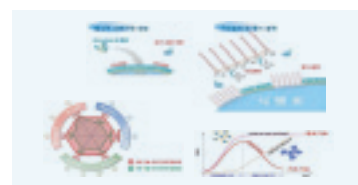
Technique for Long-Span Bridges

We completed the construction of Dongyi Bridge (Yeoncheon-gun, Gyeonggi-do), Korea's first long-span, earth-anchored, cable-stayed bridge, and the construction of the Sandaldo Bridge in Geoje, Gyeongsangnam-do, accumulating experience in the construction and management of cable forms. Based on this, we plan to begin construction of the Pyeonghwa Bridge (Paju, Gyeonggi-do), the world's longest three-tier concrete bridge.



Concrete for Extremely Hot Weather

In the past, concrete curing retardants were used at extremely hot sites, but we have developed superheated concrete technology to address problems of deterioration in construction efficiency and quality. An admixture that maximizes the retention performance of concrete has been developed to enable smooth operation, even in extreme conditions, and to minimize the delay of condensation to prevent loss of strength. This technology has been registered for two domestic patents, one patent in Vietnam and one patent in Indonesia.



Development of Off-Site Construction-Based Production System Innovation Technology (Development of Digital Platform Based on OSC)

This research was selected as a government-run task in April of 2020 and is to be conducted over the next four years with the purpose of enhancing the existing functions of RPMS (Real-time PC Management System) and developing a digital platform that improves the efficiency of various tasks related to the completion stages of construction projects, such as precast concrete, as well as furniture and windows. It will enable comprehensive management for the design, production, transport, and construction phases of materials, structural components, design management, construction plans, ordering/receiving plans, construction cost management, etc.



* RPMS : Realtime Precast-concrete Management System

Slope Displacement Measurement Technology Using Drones

We are currently developing a drone-based measurement technology to improve the efficiency of road slope surveying. Measurement technology has been limited due to interruption from vegetation, making it impossible to measure displacement with conventional images and general sensors. However, LOTTE E&C plans to contribute to the enhancement of worksite safety by using drones with L-Band SAR* sensors that can measure slopes without being affected by vegetation. As of today, 1 patent for a droned-based landscape surveying system has been issued.



* Synthetic Aperture Radar for L frequency band

Smart Biogas Plant System

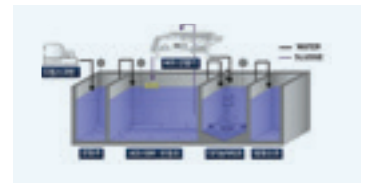
A biogas plant is a facility that converts organic waste such as livestock manure, food waste, and sewage sludge, into biogas (Composed of methane and carbon dioxide) through an anaerobic digestion process. Since 2018, we have been participating in a national project sponsored by the Ministry of Trade, Industry and Energy to develop an integrated biogas plant operation system incorporating fourth Industrial Revolution technologies such as the IoT platform and AI in order to develop a new differentiated business in line with the government's policy of expanding renewable energy and resource-recycling.



Technologies to Create the Environmental Values

AGS (Aerobic Granular Sludge) Wastewater Treatment Technique

Our advanced sewage treatment method using AGS, a high-density complex microbial agent, is the latest sewage treatment technology and can reduce construction and operating costs by more than 30 %. LOTTE E&C obtained a new environmental technology certification and technology verification from the Ministry of Environment in 2018 for its 'Advanced, continuous-batch sewage-treatment technology for maintaining aerobic granule sludge concentrations with a belt filter'. We are striving to commercialize this technology through demonstration research with a scale of 3,000 tons/day.



Scattering Dust Reduction System on Construction Site

To respond to complaints of dust scattering at construction sites, we have introduced and are running spray blowers to reduce different types of dust at sites such as demolition projects and earth-works.



06

Achieving Customer Satisfaction

Importance of the Issue

The development of industries and the diversification of services have improved the quality of life, and today's customers judge value based on a wide range of criteria before selecting and purchasing the products and services provided by companies. As a result, customer satisfaction can be met only when the products and services offered by a company sufficiently satisfy all of the criteria put forth by the customers.

LOTTE E&C strives to satisfy customer expectations and to fulfill customer satisfaction by strengthening the quality competitiveness of the Housing and Building works. In addition, we provide various services in consideration of customer characteristics through continuous communication, and doing our best to protect customer information, which is a rising issue.

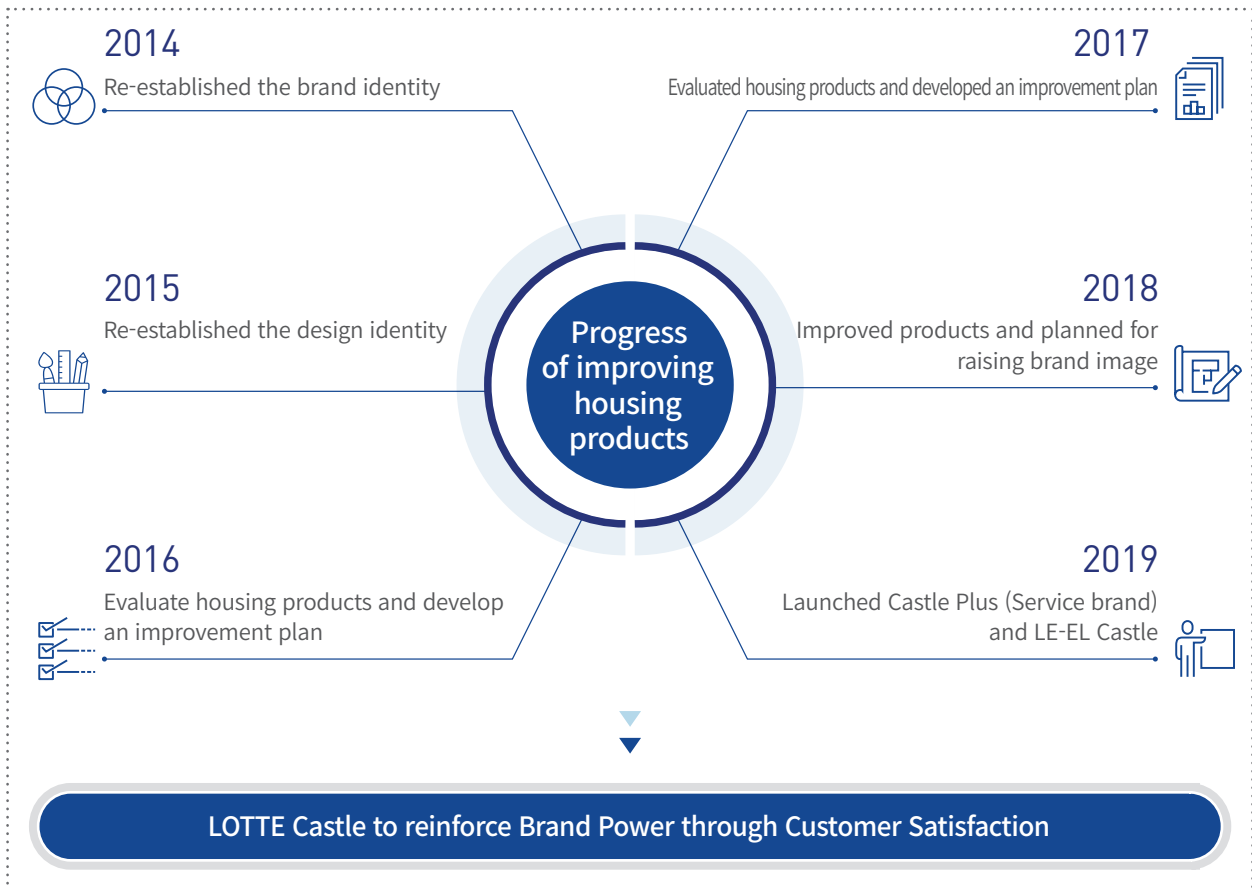
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76

Development of Housing Products to Achieve Customer Satisfaction

LOTTE E&C is devoted to increase customer satisfaction in specified aspect such as brand, design, product quality and service.

Progress of Improving Housing Products



2019 Key Performances

Quality Inspections Completed



102 times

Satisfaction Rate with the Castle Clean Service



97.5 %

Quality Innovation Academy



16 sessions

High-End Residential Brand Leel (LE EL) Launched



Quality Competitiveness Improvement

Under our customer value management vision called “Providing Customer Satisfaction and Better Values for Customers with the Best Products and Services”, LOTTE E&C is raising the quality of construction and strengthening its services. In particular, we are improving customer satisfaction by enhancing our quality inspection system for our housing and building businesses.

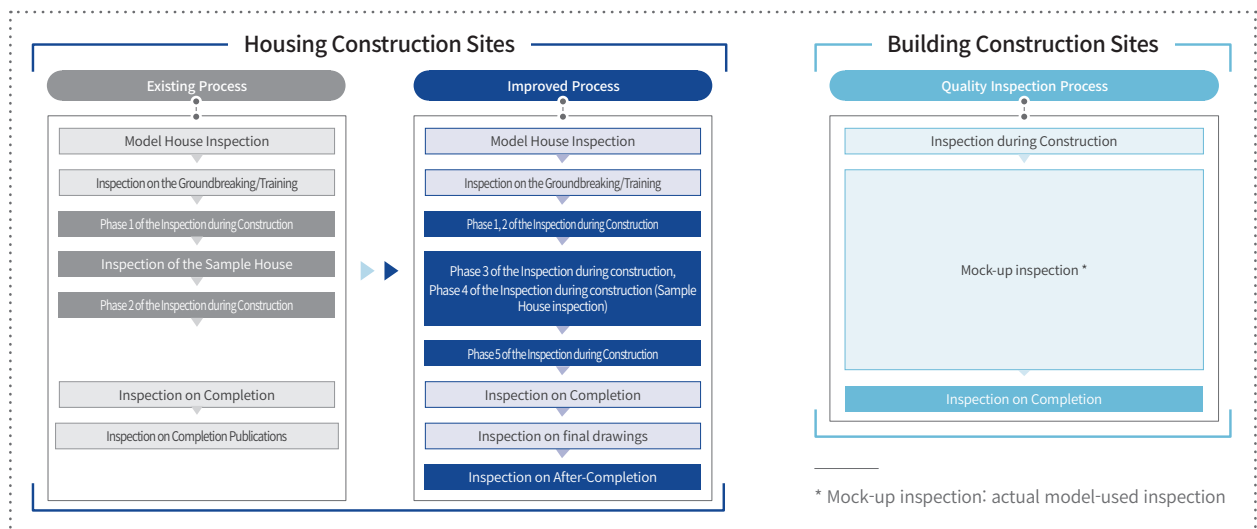
Training on Quality Innovation

We offer ‘Quality Innovation Academy’ training to all our employees in technical jobs. We held 16 training sessions in 2019 in an effort to improve the professional skills of these employees by offering courses on major cases of defects occurring at construction sites, design standards and regulations, and approaches to construction quality improvement.

Enhanced Quality Inspections

LOTTE E&C is strengthening its inspection procedures for checking the quality levels and key defective factors at each stage of a construction project. We are increasing the frequency of inspections to prevent defects. We have also developed vital solutions that can eradicate chronic and repetitive defects and implemented them at our construction sites.

Quality Inspection Process



'My House Visiting Day' Event

For prospective residents scheduled to move in, LOTTE E&C hosts the 'My House Visiting Day' event. We perform a resident-oriented pre-inspection of residences that includes 1-on-1 counseling for customers in order to gather customer opinions and to handle civil complaints promptly.



Inspections after Completion of Construction

Even after the completion and opening of new residences, LOTTE E&C sends out teams of workers to inspect the equipment, interior and wallpaper conditions. For 3 months after completion, we operate an emergency maintenance team composed of multi-skilled workers who focus on maintenance, including prompt repair. Furthermore, to boost the credibility of its quality management, LOTTE E&C conducts a special inspection of incoming panels, elevators, and deadwood, and checks the status of their removal.



Improvements of Customer Satisfaction

LOTTE E&C actively communicates with its customers through its communication channels with the goal of improving customer satisfaction. LOTTE E&C is striving to reflect in its management activities all the different viewpoints expressed by customers via these channels, including areas of customer dissatisfaction and customer feedback on products.

Customer Communication

The gathering of customer opinions is accomplished using variety of methods ranging from house-visit interviews to online opinion gathering, quantitative surveys, and focus group interviews (FGI). The feedback we hear from our customers is reflected in our products and services to enhance our brand value. We also analyze issues specific to particular customer contact points and establish appropriate management plans, and offer services that reflect our customers' characteristics.

Strengthened CS Education

In order to strengthen our CS execution capability throughout the company, we invite experts to give lectures on service, and also we train in-company lecturers as well. In addition, all employees of the C/S department and our partner companies receive expert technical training and customer service training.

Mobile Application for Smart Homes



The 'Castle Smart Home' application, an updated version of our original apartment household management application, is supplying digital home services to LOTTE Castle residents.

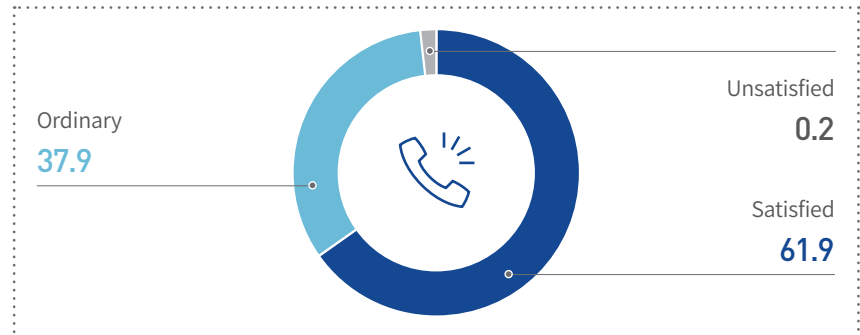
Based on advanced information communication technologies such as IoT, the application provides convenient services like information sharing among apartment buildings, monitoring and control of light·gas·water·heating·cooling equipment in individual households, and checking deliveries/visitors/vehicles, as well as security functions like facial recognition, and services linked to LOTTE Group subsidiaries.

Happy Call Service

LOTTE E&C gathers information on customer satisfaction with warranty service and customer complaints. The information is fed back to improve our products and services. All information feedback is inputted into a database for better management; and we can monitor the problem resolution plan, progress and follow-up status using a mobile solution.

Level of Satisfaction on Happy Call (2019)

[Unit: %]



Castle Clean Service (Renamed Castle Plus Service in 2020)

LOTTE E&C provides Castle Clean Service as a free additional service to LOTTE Castle tenants, depending on the length of their occupancy. The service consists of functions in high demand, such as kitchen, bathroom, and bed cleaning, as well as exterior window cleaning. The Castle Clean Service satisfaction survey, conducted in 2019, showed a customer satisfaction rate of 97.5%. We are continuously improving the organization of the service and the service items, while increasing customer satisfaction and enhancing our brand image through steady promotions.

Participation in Social Contributions Programs with Local Residents



The Donation Campaign

LOTTE E&C runs a sharing campaign with 'The Beautiful Store Foundation' that allows local residents to directly participate in making donations. Funds collected through the campaign are used to help underprivileged people in Korea and overseas, and to fund public benefit activities, education for children and youth, and resource recycling.

In addition to this campaign, we organize numerous other activities, including t-shirt and eco-bag making, photo zones, magician performances and a cafeteria. These serve as venues for communication among the residents.

Customer Information Protection System

LOTTE E&C is reinforcing the company's information protection system to protect its information assets from viruses and hacking and to manage its customer personal information safely so as to minimize the damages cause by information leaks. In particular, following the enactment of the system improvement laws by the CISO (Chief Information Security Officer), we established a designated department for information protection directly under the CEO and are exerting our utmost efforts in preventing security accidents through systematic information protection activities.

In 2017, LOTTE Castle's distribution system was the first in the industry to obtain ISMS (Information Security Management System), certification. In 2019, we expanded the scope of the certification to our operating system for rental homes (Elyes). We provide annual training for all employees who are responsible for handling personal information. Training and supervision are provided simultaneously so that consignees, including real estate brokers, can securely handle personal information while performing their tasks.

Meanwhile, as a means of raising employee awareness of security issues, LOTTE E&C holds Information Protection Day each month during which each team conducts a self-inspection. Every quarter, departments involved in information protection conduct joint inspections to assess the state of information protection across the entire company, with a focus on the following four security areas: PCs, paper documents, the office environment, and personal information.

Also, we have adopted the information protection KPI assessment system and are operating it for each team to manage performances on information protection at a company-wide level. In May 2019, we introduced the Integrated Information Monitoring System, through which signs of security risks can be detected in advance.

* ISMS : Information Security Management System

Customer-Oriented Design

In November 2019, we launched LE-EL CASTLE, a high-end brand based on the concept of ‘Silent Luxury’. In line with this concept of sophistication, one that encompasses the kind of value that transcends generations while also carrying the luxurious image of a Castle, we created a new brand

Mood lighting system for households



Given the effect that warmth of color and illumination has on residents, we came up with a solution that optimizes color and brightness according to lifestyle, with lights from 2,700 K (Soft white) up to 6,500 K (Daylight). It is possible to control the light intensity with a jog dial or through the application, and a variety of user modes, such as movie, rest, normal and reading, make it easy to create the right atmosphere

79
80

Air-purifying electrothermal ventilation system



We ensure a clean internal environment by regularly measuring environmental information (i.e., fine dust, carbon dioxide, concentrations of volatile organic compounds) in real time and running an automatic ventilation system.

In addition, a HEPA filter (Class 13) mounted in the body of the electrothermal ventilation system filters out 99 % of indoor fine dust, helping to maintain superior air quality.

Sinks with under-sink storage



Sinks with cabinets underneath are a practical way of providing additional storage space for bathroom or cleaning supplies. For our sinks, we use materials that are resistant to moisture and have long-term durability, making them easy to maintain.

Developed child-friendly housing complexes



In response to the increase in dual-income families and the participation rate of people in their 30s and 40s with young children in buying homes, we have developed child-friendly housing complexes. Based individualized surveys on the ages and childcare needs of children, we have developed our residential complex products from a comprehensive perspective, which includes community facilities, external spaces, public spaces, and unit households.

that represents a limited-edition residential product of the highest quality that embraces all the accumulated expertise of LOTTE E&C. We hope to touch our customers' hearts by continuously developing new products.

Small 59-Type specialized floor plan (For one-person households) •-----



As a floor plan for single-person households, such as 'gold singles' and 'home aloners', the focus is on a spatial design that can reflect the personal tastes of residents as trends change. We suggest an alpha space that can be used for a variety of different purposes, such as an open parties or a study, and which includes a large bathroom where you can enjoy the scenery or watch TV, and a large showroom-type dress room.

Small 59-Type specialized floor plan (For couples and kids) •-----



By studying the lifestyle involved in caring for children, washing them, and putting them to sleep, we have developed a floor plan with the shortest distance from the kids room to the large master bedroom and the bathroom to help couples care for their children.

Small 59-Type specialized floor plan (For storage) •-----



This floor plan for a three-person household is specialized for storage. The plan maximizes convenience and storage with perfect utility between the large pantry, auxiliary kitchen and hallway. Occupants can also choose between a bathtub and a shower booth, depending on their needs.

Small 59-Type specialized floor plan (Duplex-style) •-----



This duplex-style rental apartment has a compact 59-type flat design that can meet the need for single-family households. It has been designed with separate doors, kitchens, and bathrooms to ensure the complete separation of living spaces and rental income and for basic privacy protection.

07

Win-Win Cooperation Partnership

Importance of the Issue

A corporation is an organization that earns its livelihood together with society as a 'Corporate Citizen' and as a member of the local community. Win-win coexistence and cooperation is being emphasized as a new paradigm in corporate management, and many companies are devoting their efforts to reinforcing their Value chain and achieving sustainable growth through win-win cooperation.

LOTTE E&C recognizes partner companies as companions in sustainability management and provides practical support activities based on its shared growth execution system. In addition, we are laying the foundation for win-win growth based on fair trade and shared growth agreements to help our partners' sustainable growth.

81

82

Shared Growth Execution System

To pursue shared growth, LOTTE E&C runs the Shared Growth Office, a department that reports directly to the CEO, and is selecting partner companies through fair criteria and procedure. We are building a solid foundation for shared growth by selecting five major tasks and pursuing them persistently, and we have added fulfillment of the terms of the shared growth agreement as one of the job performance evaluation criteria for executives in the procurement department.

Five Major Tasks of Shared Growth



Transparent Selection and Evaluation of Partner Companies

LOTTE E&C currently has business relationships with a total of 2,550 companies, including outsourcing partner companies that perform construction work and procurement partners that supply materials. We select and evaluate our partner companies on a regular basis through fair standards and procedures.

Selection of Partner Companies

Each year, LOTTE E&C selects new partner companies through a regular and all-year-round recruitment process. The selection criteria and procedures are transparently disclosed through the LOTTE E&C partner portal homepage, including the results of selection. To enhance transparency and impartiality, companies are evaluated entirely through the IT system. The evaluation items include level of construction capability, record of projects completed, revenues, credit rating, and cash flow rating. We have also instituted a process by which companies that are not selected can appeal the decision, and by which we, upon receiving an appeal, re-evaluate the company in question.

2019 Key Performances

Total Financial Support



USD
27.64
million

* Details of Total Financial Support

- Direct Support
 - Shared growth loans totaling USD 4.29 million (6-month interest-free loans for 6 partner)
 - Awards of USD 0.16 million for best partner companies (free support for 8 best partner companies)
- Mixed Support
 - Invested USD 23.16 million in a shared growth fund managed by IBK (a matching grant with IBK totaling USD 46.33 million to be used as loans for partner companies)
- Special Support
 - Funding of USD 0.03 million for the Corporate Partnership Foundation (educational investment)
 - Cash payment for outsourced costs at all residential sites: USD 686 million

Shared Growth Indicator



97 points received

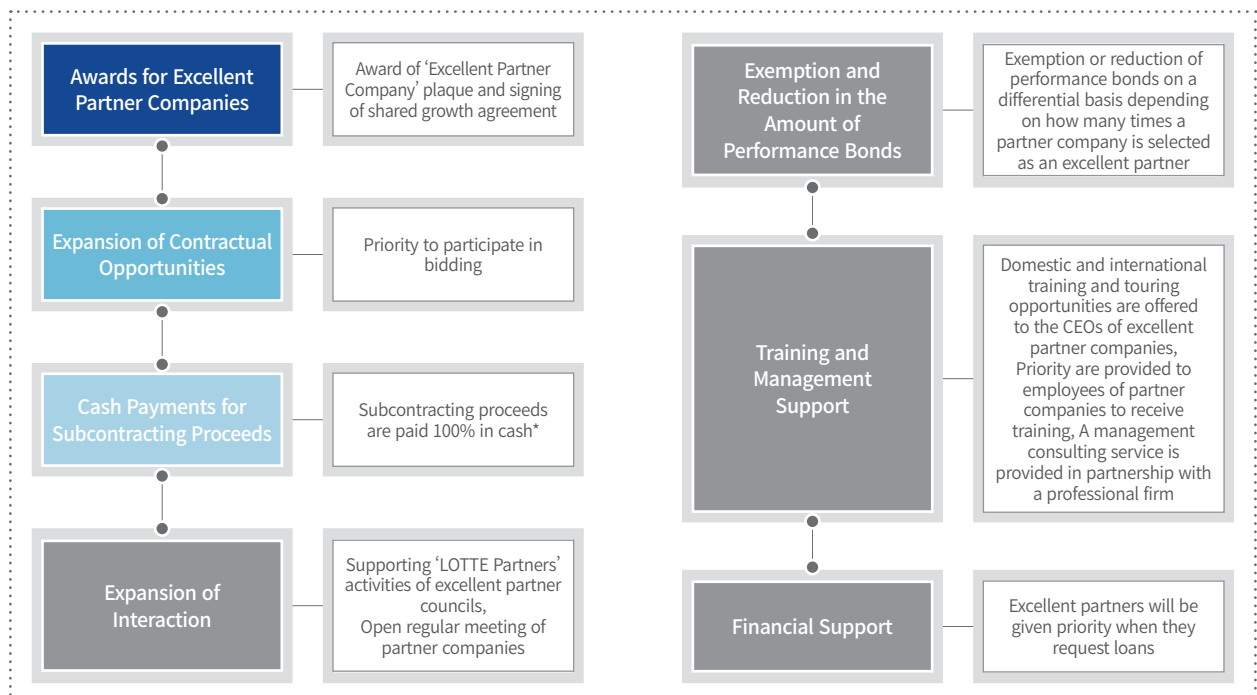
* Out of 100 points, up by 9 points since 2018



Evaluation of Partner Companies

LOTTE E&C conducts regular evaluations of its partner companies' technical/quality levels, safety/environmental management, ethical management, and management performance, with the objective of improving the competitiveness of its supply chain. Also, after taking into account our trading history, transaction amounts, and regular evaluation results, we classify our partner companies as excellent (best), major or general partners and manage them accordingly. In this way, we are strengthening practical benefits for companies selected as excellent partners such as giving them priority bidding status, exempting and reducing guaranteed securities for the implementation of contracts, fund in support and other education, and support for expansion of human resources, management, technology, and exchanges.

Incentives for Excellent Partner Companies



* Even if a contract stipulates a cash-type payment (corporate purchase card), payment is made in cash to excellent partner companies

Council of Excellent Partners



'LOTTE Partners' is a council of excellent partner companies that works with LOTTE E&C in building sustainable win-win relations between LOTTE E&C and its partner companies. The council holds two general meetings per year; operates sub-councils on technology, quality safety, and transparent society; and maintains sustainable mutual cooperative relationships among its partner companies.

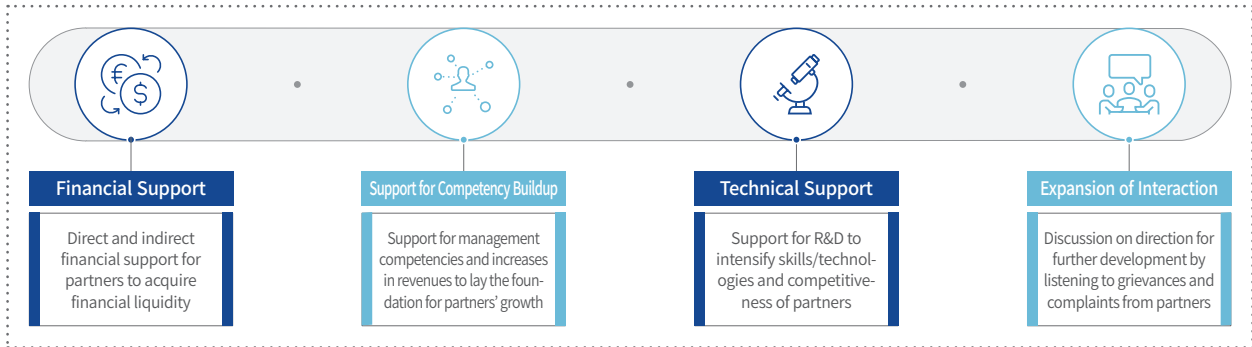
Signing of Agreement on Fair Trade and Shared Growth

LOTTE E&C signed its first fair trade and shared growth agreement in 2011. Since then, we have been signing agreements with about 350 companies every year, making them our partners in fair trade and shared growth. Signatories can receive benefits such as a higher cash payment limit, accelerated payment due dates, and educational opportunities. As evidence of its balanced efforts to establish shared growth among small, medium and large construction companies, LOTTE E&C received a score of 97 points on the Shared Growth Indicator in 2019.

Formation of Win-Win Partnerships

To build robust win-win partnerships, LOTTE E&C operates shared growth programs that can be of practical help to partner companies. The programs offer financial, competency enhancement and technical support, as well as expansion of interaction.

Key Programs



Financial support

Diverse financial support programs are provided to partner companies by LOTTE E&C. We give 6-month-interest free loans to companies to use as short-term operating funds, and have established a fund in collaboration with the Industrial Bank of Korea (IBK) to lend to our partners. We have also partnered with the IBK in providing indirect support such as favorable interest rates and an increased upper limit for loans. Every year the company also funds the Corporate Partnership Foundation.

Type of financial support	Main program	Details
Direct Support	Urgent fund support	· Interest free loans for shared growth
Combined Support	Shared growth fund	· Creation and operation of joint fund by entrusting them with the Industrial Bank of Korea (IBK)
Indirect Support	Network loan	· Loan support based on favorable interest rates & increase of credit lines in partnership with IBK
Special Support	Funding by corporate partnership foundation	· Contribution of the fund

Shared Growth Fund (Combined Support)

The 'Shared Growth Fund', is one of LOTTE E&C's win-win partnership programs for SME partners. It's a program that automatically reduces the interest on loans for SME partners by instead using the interest accrued in a fund deposited at IBK by LOTTE E&C. This program offers an automatic preferential loan interest rate of 1.0 ~ 2.4 %, which is the best in the construction industry, and as of December 2019, 64 partner companies had received funding through the program.

Support for Competency Buildup

LOTTE E&C provides support to partner companies to help them improve their employees' expertise through educational consulting and other methods. Using online and off-line tools, employees of partner companies can enroll on job-related educational courses including practical courses on construction, language, finance and cost accounting.

Management Consulting for Partner Companies

LOTTE E&C is supporting its partner companies' efforts to improve their competencies by providing them with management consulting services through a professional consulting firm, with all related expenses covered by our company. We conducted management consulting on practical management and financial practices, including financial diagnosis, tax consulting, etc., on ten companies in 2019. We plan to expand this number to twenty by 2020.

Support for Increasing Revenue

LOTTE E&C jointly develops new technologies with its partner companies and, by adopting new technologies at construction sites, builds their competencies and expands their revenue. In addition, we have participated in procurement seminars organized by the Small and Medium Business Administration (SMBA) and the Corporate Partnership Foundation, where we explained our corporate policies on partnerships, and granted select SMEs whom we judged to be competitive the opportunity to trade with our company. At the same time, we also provided assistance to SME partners who wished to attend construction industry exhibitions in order to seek sales opportunities.

Technical Support

LOTTE E&C conducts R&D on new technologies and products in the construction sector jointly with partner companies and funds the costs of development as a way of securing future growth engines and strengthening the competitiveness of our partners. Furthermore, we suggested a new direction for shared growth in the construction industry when we became the first construction company to adopt a benefit sharing system.

Expansion of Interaction

LOTTE E&C regularly interacts with its partner companies through various communication channels and listens to their difficulties. For instance, the CEO of LOTTE E&C makes personal visits to construction sites to listen to the opinions of partner companies' employees. Their opinions are then reflected back into the work process and used to improve our systems. In addition, we operate a CEO training program for the top management of our partners, which has become a venue for discussing the direction of shared growth.

Activities for Improving Employee Awareness of Shared Growth

LOTTE E&C educates its employees about the Subcontract Transactions Act in order to raise employees' awareness of shared growth and spread a fair trade culture. The company is also pursuing a campaign aimed to raise awareness of the importance of shared growth.



Education on the Fair Transactions
in Subcontracting Act

We launched an educational program on the Fair Transactions in Subcontracting Act for our employees for the purposes of contributing to the growth of a fair trade culture and minimizing subcontract disputes. In 2019, we invited external experts on subcontracting law to give lectures to 1,032 employees at our domestic sites over 17 sessions. Additionally, we operated internal training related to subcontracting laws and unfair agreements and established online training courses on subcontracting law, which apply a grade point system.



Partner Company Respect Campaign

To develop a consensus and an understanding of shared growth with our partners, we have launched the "partner company respect campaign". This campaign consists of online lectures and video materials that are created and distributed 4 times per year. We also upload information about the campaign on the company news bulletin, partner portal homepage, and shared growth homepage with the goal of spreading awareness of the importance of shared growth.

08

Value Creation for the Local Community through Social Contributions

Importance of the Issue

Corporate management, which prioritized economic value the most in the past, has now developed into a direction to create value by listening to social issues and opinions. In particular, as stakeholders' interest in corporate social responsibility expands, there is a need for genuine social contribution and value creation.

Recently, the company's social contribution activities are also changing in a way that satisfies both economic and social values by reflecting the characteristics of the company rather than unilateral activities, and efforts to directly measure social values have continued. We are strategically pursuing social contribution activities by establishing clear social contribution goals and detailed tasks, and we are establishing a virtuous cycle system to grow together with the company and the local community based on the voluntary participation and efforts of employees. LOTTE E&C will continue to conduct various activities to create social value centering on representative social contribution activities.

85

86

Social Contribution Promotion System

Basic Principle

We strive to expand our social contribution activities by selecting the items required by the local community through employees' voluntary participation, fully utilizing the expertise we have accumulated as a construction business.

Performing Organization

We operate the Social Contribution Subcommittee under the supervision of the Sustainable Management Committee. The subcommittee plays the role of a control tower over company-wide social contribution activities, and engages in the following activities: establishment of the relevant strategies, exploration of the relevant activities to be carried out, drawing up and execution of plans, operation of the relevant funds, and operation of the Charlotte Voluntary Service Corps.

Key Social Contribution Activities

Each year we conduct our social contribution programs with our employees' voluntary participation after selecting them from a mid- and long-term perspective. We also run programs in which employees' families can take part. We plan to expand the programs to include the participation of a wide variety of stakeholders.

Love House of Dreams and Hopes

In 2012, we began carrying out social contribution activities, such as repairing the homes of underprivileged groups and social welfare facilities, that allowed us leverage our strengths as a construction business. We have been renovating the interiors and exteriors of aged buildings, including local children's centers, centers for the disabled, and marginalized households, and are donating supplies such as refrigerators and washing machines.

'Briquettes of Love' Sharing Activity

In 2011, we began taking part in activities to supply coal briquettes to underprivileged households each winter. In 2019, more than 130 members of the Charlotte Voluntary Service Corps, including the President, participated in delivering a total of 60,000 coal briquettes to 60 households in the 104 village in Nowon-gu, Seoul, and Maechukji Village in Dong-gu, Busan, as part of the program.

Community Services at the Seoul National Cemetery (Volunteering Activities for Employees and Their Families)

Each year, we carry out voluntary service activities at the Seoul National Cemetery on Memorial Day (June 6) and Armed Forces Day (Oct.1) with the participation of employees and their families. The participants visit the Memorial Tower, dedicate floral tributes and carry out clean-up services for sisterhood cemeteries. In 2019, around 119 employees and 38 of their family members took part in the activities in May and September.

2019 Key Performances

Social Contribution Expenditures



USD
2.83
million

Size of Charlotte Voluntary Service Corps



225 teams

Service Time of Charlotte Voluntary Service Teams



6,070
hours

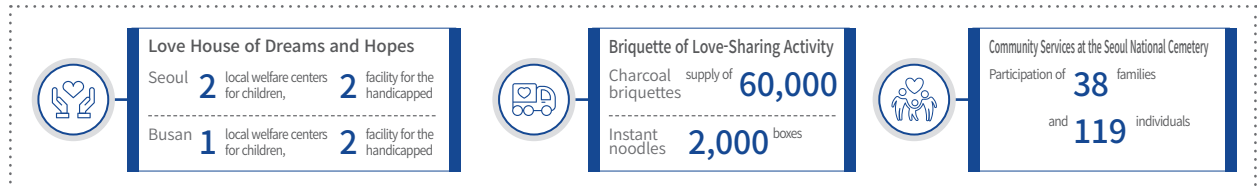
Total Number of Employees that Took Part in Social Contribution Activities



1,480
employees



2019 Key Social Contribution Activities



Operating the Matching Grant-based Social Contribution Fund

In 2011, we adopted a matching grant system as a way of raising social contribution funds. When employees donate either a chosen amount or the change from their monthly salary, the company donates and equal amount to help raise funds. In 2018, we upgraded our share of such funding to three times the amount donated by our employees—a 1:3 matching grant system. At present, 75% of employees are registered and actively taking part in the program.

Charlotte Voluntary Service Corps

We operate the Charlotte Voluntary Service Corps with the participation of employees from the company's headquarters and workplaces both inside and outside of the country. As of the end of 2019, a total of 225 teams had been registered and 85 of them were active. The Corps' major activities focus on efforts to improve the residential environment of underprivileged households, repair welfare facilities, and provide meals at welfare centers, cultural activities including support for the underprivileged to attend more cultural activities such as exhibitions and performances, and environmental clean-up activities for the beautification of local streams and parks.

Future Plans

We are gradually expanding our social contribution activities. For 2020, we are planning to expand the scope of our support in order to offer practical aid to the local community through the Love House of Dreams and Hopes, and are planning and reviewing new programs to encourage the participation of our employees in various social contribution activities.

We have also introduced a system of credit points to encourage our employees to take part in the Charlotte Voluntary Service Corps.

09

People-Oriented Business

Importance of the Issue

The very basis of a sustainable business is people. A business can expect to grow and develop when it has human resources who are creative, earnest, and unafraid of changes. Global businesses are focusing more than ever on securing and training talented employees in the belief that the key actors of risk management are people.

LOTTE E&C regards its employees as the core factor of its operation. We run many educational programs designed to help employees accumulate and learn from their experience, and are striving to foster an organizational culture conducive to that. We are doing everything we can to establish a people-centered business in which the growth of individual employees leads to the growth of the company.



87

88

Securing Top Human Resources

We strive to ensure that factors like gender, regionalism or academic background do not stand in the way of recruiting good employees. We recruit new employees based on fairness, diversity, aptitude, and rationality. We run campus recruitment and programs like job café as part of such efforts. We also endeavor to attract highly experienced job applicants who can meet specific requirements when engaging in new projects.

Training Employees as Experts

We are striving to strengthen our global competitiveness and create our future business value on the back of our employees' expertise and global capability. We make unsparing investments and provide all possible support to help our employees build their expertise further, with the focus on the following factors: leadership ability, jobs, and global operation.

Leadership-related Capability

Leadership Diagnosis

Since 2014, we have been running a leadership diagnosis program in which directors, team leaders, and site managers are encouraged to reflect on their own leadership styles and capabilities and find what they need to change about their own behavior in order to be constructive leaders. We strive to adopt leadership styles suited to real situations and are pursuing balanced growth for the entire organization and its leaders. In 2019, a total of 207 employees completed the program.

CEO Course

We arrange for high-ranking directors to attend CEO courses at leading universities around the country, recognizing the necessity of helping them develop their capabilities further and build up their human resources network. In 2019, one director attended the CEO course, and a total of 39 directors have attended to date.

EMBA

We run an EMBA program to train our directors as business leaders equipped with management knowledge and expertise. Our EMBA program is composed of a course on basic knowledge and the most recent theories related to HR, finance, marketing, and strategic management, and a practical course on the kinds of issues that directors face in real management situations. The senior EMBA course, which is the top course of its kind, is designed to help trainees analyze cases both in and out of the country based on management theory and to build their macro-prudential perspectives. In 2019, 9 directors attended the program, and a total of 147 high-ranking directors have attended the course to date.

2019 Key Performances

No. of Employees who Attended Educational Programs



3,360
employees

No. of Hours of Education per Employee



115 hours

Total Expenditure on Education



USD
3.10
million



Executive Forum

Each month the LOTTE Academy holds the Executive Forum at which the executives of LOTTE Group affiliates discuss issues of common interest such as social and technical trends both in and out of the country. External experts are also invited to the session to help the directors enhance their strategic perspectives.

Job-related Capability

Professional Job-related Education

Each division carries out its own job-related education composed of theory, analysis of relevant cases, team presentations of their projects, and evaluation. Attendees are encouraged to share their technical know-how with each other and study together. We plan to make the sessions an opportunity to help employees build their expertise further.

Global Operation-related Capability

Building Job Capabilities Related to Overseas Business

We carry out educational sessions designed to help employees build their job capabilities related to overseas construction. The relevant employees are trained to understand overall working-level matters ranging from bidding to completion of work. In-depth education is provided on working-level details about such matters as contract management, procurement, and site management, utilizing both in-house and outside lecturers.

Educational Results in 2019



Global School

We operate a Global School program to help overseas business-related employees including those to be dispatched to foreign countries to conduct specific assignments and build their global communication capability. This program includes education on the language and culture of the relevant countries. We aim to maximize the effects of the education through a 20-week-long phone/online channel-based education course with the focus on long-term repetitive practice of languages.

Adoption of OPIc (Oral Proficiency Interview – Computer)

We have adopted the OPIc standard, a certified means of evaluating foreign language proficiency, in a bid to objectively measure the foreign-language ability of our employees and secure more employees suited to our global operations. In 2018, we had all our employees take the OPIc test, and they are allowed to take it once a year at their own discretion. We also included the OPIc test results in screening for promotion to encourage employees to improve their foreign language skills. It is expected that the OPIc test results will enable us to build up a human resources pool capable of carrying out work in foreign countries.

Foreign Language Courses for Employees dispatched to Overseas Projects



In this era of DT (digital transformation), we are operating a safety training course that provides indirect experience of accidents using VR (virtual reality) as an attempt to integrate DT into the educational sector.

Our VR Safety Training Course, which we conducted to improve alertness to disasters and enhance company-wide safety awareness, used the experience of life-like virtual accidents and practices as a means of eliminating risk factors. A total of 268 employees participated in the course, including the President and executives.

Publication of a Beginner-Level Indonesian Language Text for Construction Managers

The company has published a textbook on everyday Indonesian for employees working at construction sites where English is not spoken widely. It is expected to help employees build their local language skills within a short period of time.

Fostering a creative organizational culture

LOTTE E&C is striving to establish a creative foundation through mutual trust and cooperation between employees and management to create corporate growth, employee happiness, and social value. In addition, we are carrying out various activities to build a creative organizational culture, including innovation competitions, employee self-esteem programs, the LOTTE Family Unity Contest, and the Charlotte Volunteer Corps. In 2019, we were selected as an excellent company in the employee happiness category, and were awarded the 'Employees' Happiness Creation Award' at the Group declaration ceremony for a value-creating culture.

Fostering Company-wide Innovative Culture

We engage in company-wide innovative efforts in a wide variety of areas in activities designed to enhance our competitiveness, improve our construction methods and quality, reduce costs, and encourage employees to make constructive suggestions to management.

Innovative Activity Contest

We hold the Innovative Activity Contest towards the end of each year to inform employees of exemplary innovative cases and reward those selected as exemplary employees in a bid to foster an innovative culture throughout the company and attain our management objectives.

Communication Between Employees and Management

We regularly convene the labor-management council, which is composed of five members from each side, to discuss major pending issues, such as employee welfare, wages, health and safety. Based on this, we have built a solid relationship of mutual trust and harmony between employees and management. We also operate an online complaint-handling system which guarantees the anonymity of reporters, and make it mandatory to provide feedback within ten days of the receipt of a complaint. In 2019, we received and resolved a total of 23 complaints related to working conditions/environment and evaluation results.

Invigoration of On-site Communication

We are promoting communication among employees by establishing various communication channels such as Recognition and Praise Day, Completion Support day, and Safety Communication Day. In addition, we are making efforts to reinforce on-site communication by activating communication between the headquarters and the site to improve understanding of the site, and to derive improvement measures by listening to difficulties and suggestions from the site.

Engagement Diagnosis

We diagnose our employees' level of engagement in business activities to check the sustainability of our business growth engines. We have also reviewed their understanding of our business core values through an organizational diagnosis and established a basis for managing the level of implementation of those core values. As of 2019, the score on the engagement diagnosis stood at 85/100 and as a follow-up, we disseminated our core values to enhance both employee focus tasks and organizational pride. Additionally, we are designing and implementing various systems to upgrade the overall working environment, including work-life balance, compensation, recognition without discrimination, and more.

2019 Key Performances



W-Leadership Program



The W-leadership program, a channel aimed at ensuring our commitment to the development of talented female employees and the enhancement of the pride and self-esteem of our female managers, was expanded in 2019 to a company-wide program.

The W-leadership program, which was conducted for 107 female employees throughout the company, not only covered the significance of female talent and strategic direction female employees, but also achieved positive results in organizational revitalization, serving as a platform for engagement. Moving forward, we plan to expand education for female leadership to nurture female directors and heads of organizations.

Company-wide Campaign for Mutual Respect

We have set the period of emphasizing zero tolerance of power abuse in an effort to put an end to power harassment including verbal violence, sexual harassment, etc. within workplaces and make the company a workplace full of self-pride and mutual respect/trust.

We posted the affidavit for putting the idea of mutual respect among employees into practice (the hanging board containing the President's affidavit was put up) and the relevant culture toon on the in-house intranet.

Relevant posters and leaflets were distributed throughout the company.

Innovation Campaign 'ERRC'

We have set the innovative 'ERRC'* campaign in motion to innovate our way of doing business and to achieve excellent results. As part of the campaign, we reward employees who come up with good ideas for the company business and put them into practice to enhance our employees' satisfaction with their work.

* ERRC: Eliminate wrong practices/Reduce time and expense/Raise communication and cooperation/Create a new way of doing business.

Fair Evaluation of Results and Adequate Compensation

We strive to make fair judgments of individual employees' abilities, achievements, core value to compensate them adequately according to their abilities and results.

We also strive to provide incentives such as rewards to high-performing employees from time to time.

Fostering a 'Great Work Place' Culture

We are doing all we can to foster a 'Great Work Place' culture, encouraging employees to join in the effort to make our company a pleasant workplace.

Welfare Benefits

We operate a selective employee welfare system in which individual employees are allowed to choose welfare items that meet their specific requirements, such as a health diagnosis for their spouses and group insurance, or welfare cards that accrue points. We pay our employees' health diagnosis and insurance/medical expenses, while also providing housing loans, paying tuition fees for their children—regardless of how many they have—and providing congratulatory · consolatory monetary on important occasions.

At the beginning of each year, we inform employees of the plan for spending annual leave earned by them. The types of leave from work provided by us include: flexible arrangement of multiple holidays interspersed with workdays, refreshing leave, summer holidays, etc. Our welfare system, which is designed to help employees work for the company pleasantly and stably, includes workers' compensation insurance, insurance for family members of employees working abroad, safety management service for employees working abroad, rewarding long-term employees, allowing employees to extend their retirement age, the salary peak system, and the provision of benefits under the four leading insurances.

In 2017, we initiated a minimum of one-month parental leave for male employees when their spouse gives birth, which has gained positive feedbacks. Starting from 2018, we had male employees in single-income families use parental leave within three months (Previous 1 year) after birth. The income of first month leave is 100%* of ordinary salary, when 4 ~ 6 month, its 50% of ordinary salary. Starting in 2019, congratulatory money raised from 500 thousand won to 2 million won (1.5 million won increased) for every child after the first born.

* Government subsidies included.

91
92



Work-Life Balance

We offer a one-night/two-day 'family-friendly program' to help our employees improve work-life balance. Employees and family members who take part in the program are encouraged to deepen their bonds of family love and enhance their understanding of the company through various activities.

As a result of our continued operation of a parental leave system and daycare centers at workplaces, we were awarded the Family-Friendliness Certification in 2015 and the Leisure-Time Friendliness Certification in 2019. We have also earned recognition as a business that leads the way in promoting a sound work-life balance.



Improvement of the Practices of Working Hours

We observe the statutory working hours stipulated in the revised Labor Standards Act by operating a work hours management system and utilizing diverse work systems.



Originality

93

94

We create sustainable results based on
LOTTE E&C's unique identity.

95 Key Performance in Sustainability Management



Key Performance in Sustainability Management

Economic Performance (Based on separate financial statements)

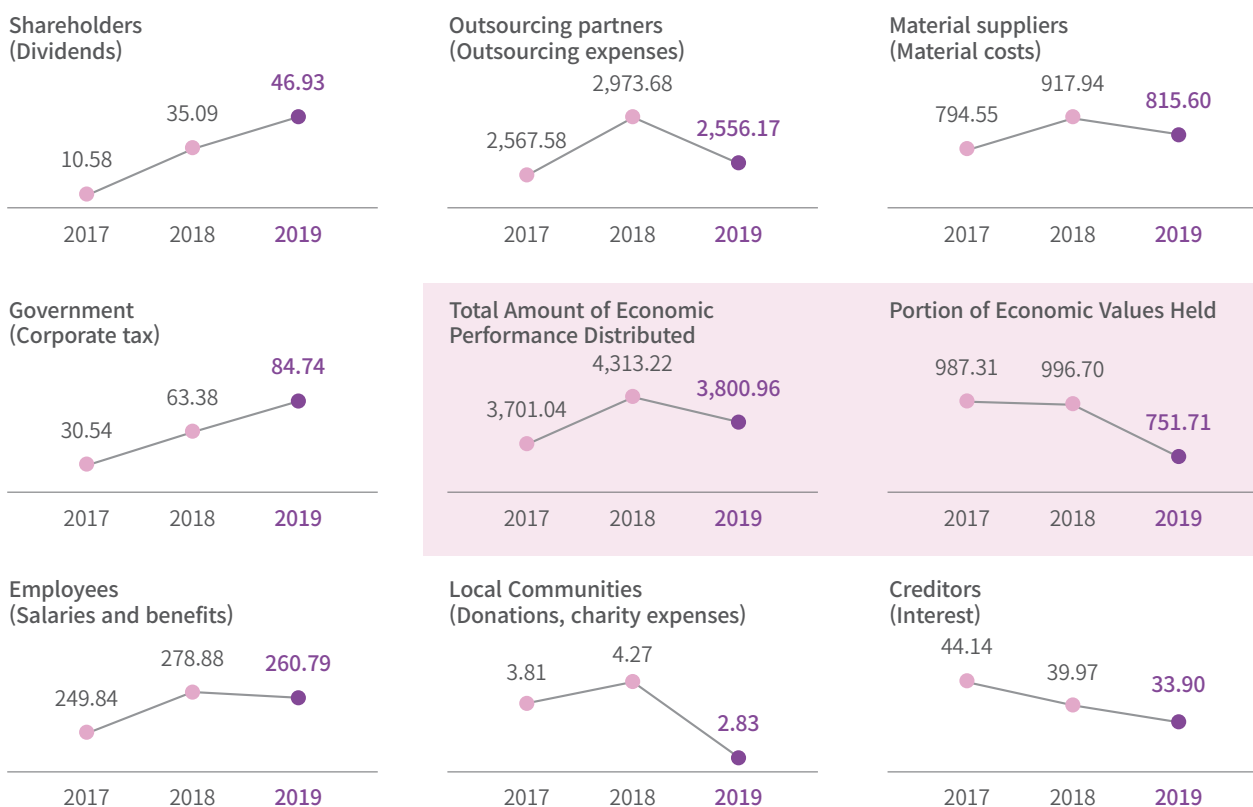
Creation of Direct Economic Values

Type		Unit	2017	2018	2019
Orders	Total orders	USD Million	7,220.21	6,626.74	7,624.76
	Domestic	USD Million	6,715.27	6,043.44	6,659.29
	Overseas	USD Million	504.93	583.30	965.47
Revenue		USD Million	4,688.35	5,309.92	4,552.68
Gross profit		USD Million	545.62	662.10	501.34
Operating income		USD Million	331.10	438.34	263.05
Profit before income tax		USD Million	59.97	218.00	275.94
Net income		USD Million	29.43	154.62	191.20
Total assets		USD Million	4,242.07	4,552.74	4,226.80
Liabilities		USD Million	2,467.22	2,662.59	2,323.72
Capital		USD Million	1,774.86	1,890.15	1,903.08
R&D investment	Technology development service expenses	USD Million	17.13	17.47	16.83
	Exclusive technology development expenses	USD Million	4.04	4.52	4.56
Crisis due to climate change and cost of managing opportunity factors*		USD Million	0.01	0.01	0.01

* Enterprise-wide environmental management cost: ISO 14001 inspection cost and third-party verification cost for GHG

Distribution of Economic Performance

[unit : USD Million]



Retirement Pension

Type		Unit	2017	2018	2019
Pension Fund	Amount of assets accumulated	USD Million	133.65	160.36	180.37
Number of subscribers		persons	3,091	3,154	3,341

Evaluation of Corruption Risks at Workplaces

Type		Unit	2017	2018	2019
Number of workplaces		Workplaces	255	185	260
Ratio of workplaces		%	100	100	100

Identified Corruption Cases, Unfair Trade Acts, and Legal Actions Taken

Type		Unit	2017	2018	2019
Number of corruption cases		cases	1	1	3
Number of legal actions taken for unfair trade acts		cases	1	0	0

Notification and Training on Anti-Corruption Policies and Procedure

Type		Unit	2017	2018	2019			
Number and ratio of governance body members who were notified and trained on anti-corruption policies and procedures	Number of members	persons	8	8	8			
	Ratio of members	%	88.9	100	100			
Number and ratio of workers who were notified and trained on anti-corruption policies and procedures	Number of workers by type	Regular employees	persons	2,286	2,360	2,506		
		Contractual employees	persons	904	858	854		
	Ratio of workers by type	Regular employees	%	100	100	100		
		Contractual employees	%	100	100	100		
	Number of workers by country	South Korea	persons	3,026	3,089	3,222		
		Indonesia	persons	34	38	36		
		Vietnam	persons	25	33	43		
		Japan	persons	5	2	1		
		China	persons	51	36	27		
		Pakistan	persons	12	3	5		
		Russia	persons	2	2	7		
		Malaysia	persons	32	5	6		
		Qatar	persons	2	1	0		
		Cambodia	persons	0	9	11		
		Australia	persons	1	0	0		
		Jordan	persons	0	0	0		
		India	persons	0	0	0		
		Singapore	persons	0	0	2		
		Number and ratio of partner companies that were notified on anti-corruption policies and procedures (domestic)*	Number of partner companies by type	Outsourcing partner companies	companies	1,708	1,568	1,580
				Raw material suppliers	companies	894	879	970
Total	companies			2,602	2,447	2,550		

* Impossible to separate the partner companies for each country

Environmental Performance

Material Consumption

Type		Unit	2017	2018	2019
Non-renewable raw materials	Ready-mix concrete	m ³	3,210,702	3,025,285	2,905,589
	Cement	Ton	196,935	27,312	41,630
	Aggregate	m ³	141,614	80,013	70,873
	Asphalt concrete	Ton	496,845	231,764	200,942
	Sand	m ³	17,361	29,649	16,136
	Rebar	Ton	478,479	457,461	375,279
	Plaster board	Board	2,209,102	3,210,556	3,282,054
Recyclable raw materials	Recycled aggregate	m ³	3,754	1,328	6,358
Ratio of recycled materials as input		%	2.6	1.6	8.2

* Includes activities in overseas sites

97

98

Waste Generation

Type		Unit	2017	2018	2019
Amount of waste by type	Waste concrete	Ton	433,146	231,371	256,598
	Waste asphalt concrete	Ton	17,729	23,348	18,502
	Wood wastes	Ton	9,396	8,875	8,804
	Waste synthetic resins	Ton	14,996	9,717	6,469
	Waste soil and stones	Ton	28,026	97,943	67,542
	Construction sludge	Ton	3,150	4,885	2,889
	Roof tile wastes	Ton	0	0	0
	Tile / Ceramic waste	Ton	220	102	11
	Waste bricks	Ton	0	0	0
	Waste blocks	Ton	0	0	0
	Textile wastes	Ton	10	0	23
	Waste boards	Ton	1,045	2,254	2,370
	Waste glass	Ton	0	0	0
	Other wastes	Ton	2	114	18
	Mixed construction waste	Ton	86,256	167,179	116,474
	Amount of waste by treatment method (General waste)	Reusable	Ton	0	0
Recyclable		Ton	543,118	527,989	463,791
Fertilization		Ton	0	0	0
Incineration		Ton	7,498	1,604	1,748
Landfill		Ton	43,360	16,196	14,162
On-site storage		Ton	0	0	0
Others		Ton	0	0	0

* Data from domestic worksites

Water Consumption

Type	Unit	2017	2018	2019
Water and sewage consumption	Ton	1,242,057	1,712,259	997,232
Underground water consumption	Ton	294,015	237,520	151,025

* Data from domestic worksites

Energy Consumption

Type	Unit	2017	2018	2019	
Amount of energy purchased	Steam	TJ***	1.99	0.46	2.07
	Electric power	TJ	747	742	718.55
Amount of fuel consumed	Brown coal	TJ	81.5	61.08	42.38
	LNG	TJ	37.82	42.86	23.13
	LPG (Vehicles)	TJ	0	0	0.36
	LPG (Liquefied Petroleum Gas)**	TJ	-	-	43.89
	Gasoline	TJ	0.48	0.66	0.69
	Diesel	TJ	21.83	18.21	12.07
	Kerosene	TJ	27.41	47.19	37.74
	Total	TJ	169.04	170	166.37

* Data from domestic worksites

** Newly reported from 2019

*** TJ : Terra Joule

GHG Emissions

Type	Unit	2017	2018	2019
Scope 1(Direct emissions)	tCO ₂ eq**	13,268	12,577	9,371
Scope 2(Indirect emissions)	tCO ₂ eq**	36,338	36,124	35,041

* Data from domestic worksites

** tCO₂eq : Ton CO₂ equivalent (Unit expressed by converting and integrating the total amount of greenhouse gases emitted into CO₂ emissions(ton))

Social Performance

Current Status of Employees

Type	Unit	2017	2018	2019	
Total number of employees	persons	3,190	3,218	3,360	
Number of male employees	persons	2,941	2,960	3,079	
Number of female employees	persons	249	258	281	
Number of regular employees	Total	2,286	2,360	2,506	
	Male	2,166	2,222	2,307	
	Female	120	138	199	
Number of contractual employees	Total	904	858	854	
	Male	775	738	772	
	Female	129	120	82	
Ratio of regular employees	Total	71.6	73.3	74.6	
	Male	67.9	69	68.7	
	Female	3.7	4.2	5.9	
Ratio of contractual employees	Total	28.3	26.6	25.4	
	Male	24.3	22.9	23	
	Female	4	3.7	2.4	
Number of employees by age group	Below 30 years old	452	429	372	
	Between 30 and 50 years old	2,402	2,401	2,461	
	Over 50 years old	336	388	527	
	Total	3,026	3,089	3,222	
Number of employees by region	South Korea	34	38	36	
	Indonesia	25	33	43	
	Vietnam	5	2	1	
	Japan	51	36	27	
	China	12	3	5	
	Pakistan	2	2	7	
	Russia	32	5	6	
	Malaysia	2	1	0	
	Qatar	0	9	11	
	Cambodia	1	0	0	
	Australia	0	0	0	
	Jordan	0	0	0	
	India	0	0	0	
	Singapore	0	0	2	
	Regular employees	South Korea	2,144	2,235	2,377
		Indonesia	29	37	32
		Vietnam	23	32	42
		Japan	5	2	1
		China	51	36	27
		Pakistan	8	3	5
Russia		2	2	7	
Malaysia		21	5	5	
Qatar		2	1	0	
Cambodia		0	7	9	
Australia		1	0	0	
Jordan		0	0	0	
India		0	0	0	
Contractual employees	South Korea	882	854	845	
	Indonesia	5	1	4	
	Vietnam	2	1	1	
	Cambodia	0	2	2	
	China	0	0	0	
	Pakistan	4	0	0	
	Russia	0	0	0	
	Malaysia	11	0	1	
	Singapore	0	0	1	
	Ratio of female employees	%	7.8	8	8.4
Ratio of female executives	%	1.0 (34 executives)	1.2 (39 executives)	1.4 (48 executives)	
Number of physically handicapped employees	persons	63 (2.0%)	69 (2.1%)	87 (2.6%)	

Employment Status

Type	Unit	2017	2018	2019
Total employee turnover	persons	78	66	59
Turnover of employees (Male)	persons	66	59	55
Turnover of employee (Female)	persons	12	7	4
Number of turnovers by age group	Below 30 years old	20	12	6
	Between 30 and 50 years old	51	48	41
	Over 50 years old	7	6	12
Number of turnovers by region	South Korea	78	66	59
	Indonesia	0	0	0
	Japan	0	0	0
	India	0	0	0
	Jordan	0	0	0
Number of local hires		146	165	179
Number of talented local residents employed through priority recruitment		37	36	34

Parental Leave

Type	Unit	2017	2018	2019
Total number of employees entitled to parental leave	Total	892	825	805
	Male	862	798	773
	Female	30	27	32
Total number of employees taking parental leave	Total	41	122	112
	Male	32	106	98
	Female	9	14	14
Total number of employees returning to work after parental leave	Total	40	119	110
	Male	31	106	97
	Female	9	13	13
Number of employees still on the payroll 12 months after returning from parental leave	Total	10	56	45
	Male	4	55	45
	Female	6	1	0
Ratio of employees who return from parental leave	%	97.6	99.2	98.2
Ratio of employees still on the payroll 12 months after returning from parental leave	%	24.4	47.1	40.9

Education and Training

Type		Unit	2017	2018	2019
Total number of trainees	Total	persons	3,190	3,218	3.10
	Male	persons	2,941	2,960	3,079
	Female	persons	249	258	281
Training hours per individual	Total	hours	113	113	115
	Male	hours	111	113	115
	Female	hours	136	110	111
Total training expenses	Total	USD Million	2.65	3.14	3.10

Status of Ethical Management

Type	Unit	2017	2018	2019
Number of employees participating in ethical management training	persons	3,190	3,218	3,360
Number of cases of unethical management practice	cases	15	13	8
Number of cases reported through people (ombudsman)	cases	350	466	870
Number of cases improvements and guidance provided after audits	cases	71	77	116
Assess ethical levels	points	95	96	96

Status of Social Contribution Activities

Type	Unit	2017	2018	2019
Expenses for social contributions	USD Million	3.81	4.27	2.83
Number of participating employees	persons	1,168	1,801	1,480
Number of volunteering teams	teams	169	202	225
Employee participation rate through matching grant	%	75.4	77	75.1

Partner Companies

Type	Unit	2017	2018	2019
Total number of partner companies	teams	2,602	2,447	2,550
Records of financial support to partner companies	USD Million	28.58	28.92	27.64

Safety and Health of Employees

Type		Unit	2017	2018	2019
Industrial accident rate		%	0.23	0.43	1.02
Number of cases involving a critical accident		cases	2	2	2
Number of injuries or diseases occurring among workers who are under organizational control (employees excluded)	Total	persons	66	108	118
	Male	persons	64	104	115
	Female	persons	2	4	3
Number of occupational deaths among workers who are under organizational control (employees excluded)	Total	persons	2	2	3
	Male	persons	2	0	3
	Female	persons	0	2	0
On-site safety inspections	Number of on-site inspections	Inspections	7	6	8
	Total number of inspections	inspections	923	1,199	1,158
	Number of cases with safety problems	cases	11	8	1
Safety training	Number of safety training courses	courses	12	12	12
	Number of safety training course completers*	persons	3,165	3,309	3,338
Securing of safety managers	Ratio of safety managers to regular employees	%	30	32	36.4

* Employees of Partner Companies included

Appendix



101

102

- 102 GRI Standards Index
- 105 Third Party's Assurance Statement
- 107 Memberships in Associations / Awards

GRI Standards Index

GRI STANDARDS_UNIVERSAL STANDARDS (GRI 100)				
Topic	No.	Title	Page	Note
GRI 101: Foundation				
GRI 102: Organizational Profile	102-1	Report the name of the organization	5	
	102-2	Activities & primary brands, products & services	9-46	
	102-3	The location of the organization's head office	5	
	102-4	Regions of business	5, 6	
	102-5	The nature of ownership and legal form	5	
	102-6	The markets served	5	
	102-7	Scale of the organization	5	
	102-8	Information on employees and workers	5	
	102-9	Supply chain of the organization	81-82	
	102-10	Critical changes in the organization and the supply chain	81-82	
	102-11	The precautionary principle and approach	8	
	102-12	External initiatives	53-54	
	102-13	Membership of associations	107	
GRI 102: Strategy	102-14	Statement of the chief decision maker	3-4	
	102-15	Major impacts, crises and opportunities	51	
GRI 102: Ethics and integrity	102-16	Values, principles, standards and a code of conduct	5	
	102-17	Guidance on ethics and grievance handling mechanisms	89	
GRI 102: Governance	102-18	Corporate governance	7	
	102-19	Transfer of the authority	7	
	102-20	Executives' responsibilities for economic, environmental and social topics	7	
	102-21	Consultation with stakeholders on economic, environmental and social topics	7	
	102-22	Composition of the top decision-making body and committees under it	7	
	102-23	Chairman of the top decision-making body	7	
	102-24	Recommendation and selection of the top decision-making body	7	
	102-25	Conflicts of interests	7	
	102-26	Roles of the top decision-making body in establishing goals, values and strategies	7	
	102-27	Collective knowledge of the top decision-making body	7	
	102-28	Evaluation of the performance of the top decision-making body	7	
	102-29	Roles of the top decision-making body to identify and manage economic, environmental and social impacts	7	
	102-30	Effectiveness of the risk management procedure	7	
	102-31	Review of economic, environmental and social topics	7	
	102-32	Roles of the top decision-making body on reporting of sustainability	7	
102-33	Communication on key agenda	7		
102-34	Characteristics and the number of issues of materiality	7		
102-35	Compensation policies	7		
102-36	Procedure to determine the compensation	7		
102-37	Stakeholder engagement in compensation policies	7		

103
104

GRI STANDARDS_UNIVERSAL STANDARDS (GRI 100)				
Topic	No.	Title	Page	Note
GRI 102: Stakeholder Engagement	102-40	List of stakeholders related to the organization	52	
	102-41	Collective agreement		No labor union
	102-42	Identification and selection of stakeholders	52	
	102-43	Ways of stakeholder engagement	52	
	102-44	Core topics and interests derived from stakeholder engagement	52	
GRI 102: Reporting practice	102-45	Affiliate and JV list included in the organization's consolidated financial statements		Annual Report
	102-46	Content to be reported and definition of the boundaries of topics	1, 52	
	102-47	List of material topics	52	
	102-48	Re-explanation of information	1	
	102-49	Changes in reporting	1	
	102-50	Reporting period	1	
	102-51	The latest reporting date		Website*
	102-52	Reporting cycle	1	
	102-53	Contact point for inquires on the report	1	
	102-54	Reporting method as per GRI Standards	1	
	102-55	GRI Index	102-104	
	102-56	External assurance	105-106	
GRI 103: Management Approach	103-1	Explanation on material topics and the boundaries	57, 61, 63, 67, 71, 75, 81, 85, 87	

* <http://www.lottecon.co.kr/sustainability/sustainability>

GRI STANDARDS_ECONOMIC PERFORMANCE (GRI 200)				
Topic	No.	Title	Page	Note
GRI 201: Economic Performance	201-1	Creation and distribution of direct economic values	95	
	201-3	Coverage of the organization's defined benefit plan obligations	96	
GRI 205: Anti-corruption	205-1	Evaluation of corruption risks on sites	96	
	205-2	Notification and training on anti-corruption policies and procedure	96	
	205-3	Cases of identified corruption cases and actions taken	96	

GRI STANDARDS_ENVIRONMENTAL PERFORMANCE (GRI 300)				
Topic	No.	Title	Page	Note
GRI 301: Materials	301-1	Weight and volume of raw materials used	97	
	301-2	Input of regenerative raw materials among the raw materials used	97	
GRI 302: Energy	302-1	Energy consumption within the organization	98	
	302-2	Energy consumption outside the organization	98	

GRI STANDARDS_ENVIRONMENTAL PERFORMANCE (GRI 300)

Topic	No.	Title	Page	Note
GRI 303: Water	303-1	Total water withdrawal by source	98	
	303-3	Recycling and reuse of water	98	
GRI 305: Emissions	305-1	Direct greenhouse gas (GHG) emissions (Scope 1)	98	
	305-2	Indirect greenhouse gas (GHG) emissions (Scope 2)	98	
GRI 306: Effluents and Waste	306-2	Waste by type and treatment method	97	
GRI 307: Environmental Compliance	307-1	Violation of environmental regulations	70	

GRI STANDARDS_SOCIAL PERFORMANCE (GRI 400)

Topic	No.	Title	Page	Note
GRI 401: Employment	401-1	New employment and employee turnover	99	
	401-2	Compensation for regular employees	87-92	
	401-3	Parental leave	99	
GRI 403: Occupational Health and Safety	403-1	Percentage of total workforce represented in the joint management-worker health and safety committees	99	
	403-2	Injury and disease prevalence rate	100	
GRI 404: Training and Education	404-1	Average training hours per employee	100	
	404-2	Programs for competency buildup and conversion for employees	87-92	
	404-3	Percentage of employees having been reviewed on periodic performance and career development	87-92	
GRI 405 Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	7	
GRI 412: Human Rights Assessment	412-2	Employee training on human rights policies and procedure on projects	57-60	
GRI 413: Local Communication	413-1	Management of community engagement, impact assessment and development programs	85-86	
	413-2	Sites with critical negative impact on community		No site negatively making a critical impact on community
GRI 414: Supplier Social Assessment	414-1	New partners screened through the social impact assessment	100	
GRI 415: Public Policy	415-1	Political donation		In Korea, political donation and engagement are statutorily prohibited.
GRI 416: Customer Health and Safety	416-1	Safety and health impact assessment in product and service categories	63-66	
	416-2	Cases of violating regulations on the safety and health impact of products and services		No case of violation
GRI 417: Marketing and Labeling	417-1	Product and service information and labeling		
	417-3	Violation of regulations on marketing communication		No case of violation
GRI 418: Customer Privacy	418-1	Number of cases of complaints with validated violation of the protection of customers' personal information and loss of customer information	78	
GRI 419: Socioeconomic Compliance	419-1	Violation of laws and regulations on the social and economic domains	97	

Third Party's Assurance Statement

To the Readers of 2020 LOTTE E&C Sustainability Report:

Foreword

Korea Management Registrar Inc. (hereinafter "KMR") has been requested by of LOTTE E&C to verify the contents of its 2019 Sustainability Report (hereinafter "the Report"). LOTTE E&C is responsible for the collection and presentation of information included in the Report. KMR's responsibility is to carry out assurance engagement on specific data and information in the assurance scope stipulated below.

Scope and standard

LOTTE E&C describes its efforts and achievements of the corporate social responsibility activities in the Report. KMR performed a type2, moderate level of assurance using AA1000AS (2008) and SRV1000 from KMR Global Sustainability Committee as assurance standards. KMR's assurance team(hereinafter "the team") evaluated the adherence to Principles of Inclusivity, Materiality and Responsiveness, and the reliability of the selected GRI Standards indices as below, where professional judgment of the team was exercised as materiality criteria.

The team checked whether the Report has been prepared in accordance with the 'Core Option' of GRI Standards which covers the followings.

- GRI Standards Reporting Principles
- Universal Standards
- Topic Specific Standards
 - Management approach of Topic Specific Standards
 - Economic Performance: 201-1, 201-3
 - Anti-Corruption: 205-1, 205-2, 205-3
 - Materials: 301-1, 301-2
 - Energy: 302-1, 302-2
 - Water: 303-1, 303-3
 - Emissions: 305-1, 305-2
 - Effluents and Waste: 306-2
 - Environmental Compliance: 307-1
 - Employment: 401-1, 401-2, 401-3
 - Occupational Health and Safety: 403-1, 403-2
 - Training and Education: 404-1, 404-2, 404-3
 - Diversity and Equal Opportunity: 405-1
 - Human Rights Assessment: 412-2
 - Local Communication: 413-1, 413-2
 - Supplier Social Assessment: 414-1
 - Public Policy: 415-1
 - Customer Health and Safety: 416-1, 416-2
 - Marketing and Labeling: 417-1, 417-3
 - Customer Privacy: 418-1
 - Socioeconomic Compliance: 419-1

This Report excludes data and information of joint corporate, contractor etc. which is outside of the organization, i.e. LOTTE E&C, among report boundaries.

Our approach

In order to verify the contents of the Report within an agreed scope of assurance in accordance with the assurance standard, the team has carried out an assurance engagement as follows:

- Reviewed overall report
- Reviewed materiality test process and methodology
- Reviewed sustainability management strategies and targets
- Reviewed stakeholder engagement activities
- Interviewed people in charge of preparing the Report

Our conclusion

Based on the results we have obtained from material reviews and interviews, we had several discussions with LOTTE E&C on the revision of the Report. We reviewed the Report's final version in order to confirm that our recommendations for improvement and our revisions have been reflected. When reviewing the results of the assurance, the assurance team could not find any inappropriate contents in the Report to the compliance with the principles stipulated below. Nothing has come to our attention that causes us to believe that the data included in the verification scope are not presented appropriately.

| Inclusivity

Inclusivity is the participation of stakeholders in developing and achieving an accountable and strategic response to sustainability

- LOTTE E&C is developing and maintaining stakeholder communication channels in various forms and levels in order to make a commitment to be responsible for the stakeholders. The assurance team could not find any critical stakeholder LOTTE E&C left out during this procedure.

| Materiality

Materiality is determining the relevance and significance of an issue to an organization and its stakeholders. A material issue is an issue that will influence the decisions, actions, and performance of an organization or its stakeholders

- LOTTE E&C is determining the materiality of issues found out through stakeholder communication channels through its own materiality evaluation process, and the assurance team could not find any critical issues left out in this process.

| Responsiveness

Responsiveness is an organization's response to stakeholder issues that affect its sustainability performance and is realized through decisions, actions, and performance, as well as communication with stakeholders.

- The assurance team could not find any evidence that LOTTE E&C's counter measures to critical stakeholder issues were inappropriately recorded in the Report

We could not find any evidence the Report was not prepared in accordance with the 'Core Option' of GRI standards.

Recommendation for improvement

We hope the Report is actively used as a communication tool with stakeholders and we recommend the following for continuous improvements.

- LOTTE E&C demonstrated outstanding effort to develop mid- to long-term strategies and initiatives for each division. In addition, it should be noted that the report relied on quantitative data for improved clarity. It is advised to expand key performance indicators and establish a culture of sustainability, enabling the systematic management and promotion of sustainable management.

Our independence

With the exception of providing third party assurance services, KMR is not involved in any other LOTTE E&C's business operations that are aimed at making profit in order to avoid any conflicts of interest and to maintain independence.

July, 7, 2020

CEO **Eun Ju Hwang**

Memberships in Associations / Awards

Memberships Status

Name of Association			
Construction Safety Manager Committee	Construction Association of Korea	Architectural Institute of Korea	Korea Mech. Const. Contractors' Association
Korea Chamber of Commerce & industry	Korean Society of Water & Wastewater	The Society of Air-conditioning and Refrigerating Engineers of Korea	The Korean Institute of Electrical Engineers
Korean Society of Civil Engineers	Maekyung Safety & Environment Institute	Korea Electrical Contractors' Association	Korea Information & Communication Contractors' Association
Korea Construction Transport New - Technology Association	The Korea Institute of Building Construction	Korea Federation of Construction Contractors	Korea Road Association
Korean Society on Water Environment	Korea Fire Facility Association	Korean Institute of Illuminating and Electrical Installation Engineers	Korea Housing Association
Korea Railway Construction Engineering Association	Korea Railway Association	Korea Concrete Institute	International Contractors' Association of Korea

107

108

Awards & Prizes (2018 ~)

Date	Description	Awarding Organization
2018-01-12	Prize for contributing to the nation's industrial development with the completion of Incheon International Airport Terminal 2	President
2018-03-23	Prize on the "2018 Day of Construction Engineers"	Prime Minister
2018-04-26	Prize on the "16th Day of Construction Engineers" (For the most extensive use of new construction technologies)	Chairman of the Korea Construction Transport New Technology Association
2018-05-14	Contribution to entering and developing foreign markets (Indonesian branch office)	Minister of Land, Infrastructure, and Transport
2018-06-29	Grand Prize at the "2018 TEKLA ASIA BIM AWARDS" (LOTTE World Tower)	Trimble (USA)
2018-09-18	Prize in the Best Company in Work-Life Balance category at the "2018 Korea Employment-Friendly Management Awards"	Donga-Ilbo
2018-11-23	Prize at the "14th Contest on Best Cases in Construction Environment Management" (Jikdong Park Complex 2 Apartments in Uijeongbu)	Minister of Environment
2018-11-28	Gold Award at the "2018 Good Design Award" (For Model House Gallery L)	President of the Korea Institute of Design Promotion
2018-11-29	Award for contributions to creating jobs for socially disadvantaged persons (socio-economic citizen hero award)	Mayor of Incheon
2018-12-12	Grand Prize at the "14th Korean Civil Engineering and Architectural Technology Contest" (Sandaldo Suspension Bridge)	Maeil Business News Korea
2018-12-14	Certificate of appreciation for actively participating in laying flowers at Seoul National Cemetery	Director of Seoul National Cemetery
2018-12-31	Recognition for implementing a pilot project on the digital real estate information system (First real estate transaction electronic contract system for the private sector)	Minister of Land, Infrastructure, and Transport
2019-05-30	Prize in the artist category at the "2019 Cheongju Gardening Festival" (Melody landscape garden)	Minister of the Korea Forest Service
2019-06-20	Prize on the "2019 Construction Day"	Minister of Land, Infrastructure, and Transport
2019-06-26	Grand Prize at the 2019 National Service Awards for the premium apartment category (Received the prize for the 2nd consecutive year)	Institute for Industrial Policy Studies
2019-07-05	Grand Prize at the 2019 Korea Service Grand Prix (Apartment housing category) (Received the prize for the 18th consecutive year)	Korea Standards Association
2020-07-03	Grand Prize at the 2020 Korea Service Grand Prix (Apartment housing category) (Received the prize for the 19th consecutive year)	Korea Standards Association

Information on participants in the Report

Type	Department	Participant
Housing	Housing works Planning Team, Housing works Division	Bo Yeon Kim
Building	Building works Planning Team, Building works Division	Do Kyeong Bak
Plants	Plant works Planning Team, Plant works Division	Sang Min Kim
Infrastructure	Civil works Planning Team, Civil works Division	Jae hyeok Shin
Global Business	Overseas Planning Team, Overseas Business Division	Hee Suk Jung
Ethical Management	Ethical Management Department	Kil Ho Shin
Legal Compliance	Compliance Team, Legal and Compliance Department	Sang Jun Kim Seul Bi Lee
HSE Management	Safety and Health Management Department	Sung Jin Lee Seong Su Jeong
	Safety and Health Management Department	Kyoung Suk Lee
Customer Satisfaction	CS Department	Jeong Ho Lee
Information Security	Information Security Team	Bong Sang Yoo
Client Viewpoint / Sustainable Design	Design Research Institute, Housing Works Division	Eun Jung Hyun
Win-win Cooperation	Procurement Planning Team, Sourcing and Procurement Division	Ji Hye Jeong
HR / Welfare / Corporate Culture	HR Team, HR Department	Chung Whan Han
	Welfare Team, HR Department	Je Hoon Yoo Sang Jin Um
Social Contribution / SDGs	Competitiveness and Innovation Team, Strategic Planning Department	Tae Sung Han
R&D	Research and Development Institute	Hyung Jae Moon Hwi Soon Ahn
Supervised By	Competitiveness and Innovation Team, Strategic Planning Department (Secretariat for Sustainability Management and Development)	Gi Beom Nam Jung Ho Shin



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