



# Sustainability Report

LOTTE Engineering & Construction 2019



**LOTTE E&C**

# About This Report

## Features of the Report

LOTTE E&C has been publishing the Sustainability Report every year since 2013 as a means of disclosing transparently its sustainable management activities and performance results to its stakeholders. This report links LOTTE E&C's strategies and sustainability management systems, and contains activities based on the UN Sustainable Development Goals (SDGs), which expresses LOTTE E&C's commitment and endeavor to grow with the local community 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, 2018. For some material issues, information from the past up to August 2019 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 185 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 2018, 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 Option<sup>1)</sup> 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 108-109 of this report.

## Contact Us

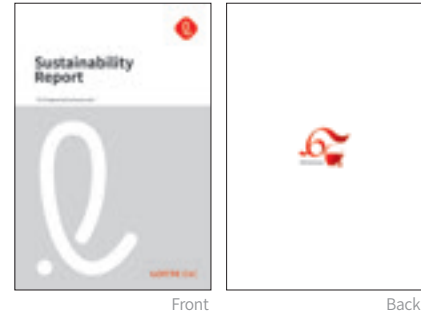
This report can be downloaded at LOTTE E&C's website (<http://www.lottecon.co.kr/eng>); please contact the following for any inquiries:

**Competitiveness and Innovation Team,  
Strategic Planning Department, LOTTE E&C**

Address 29, Jamwonro 14-gil, Seocho-gu, Seoul 06515, Korea

E-mail [lottenc\\_csr@lotte.net](mailto:lottenc_csr@lotte.net)

Tel +82-2-3480-4429



## 2019 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 100<sup>th</sup> anniversary.

The emblem on the back is 'LOTTE E&C's 60<sup>th</sup> Anniversary Emblem', which was selected through an open competition. It emphasizes the number '6' and the 'construction worker', which represents LOTTE E&C meeting its 60<sup>th</sup> 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 (2016 to 2018):  
Yearly KRW-USD average exchange rate for the respective years

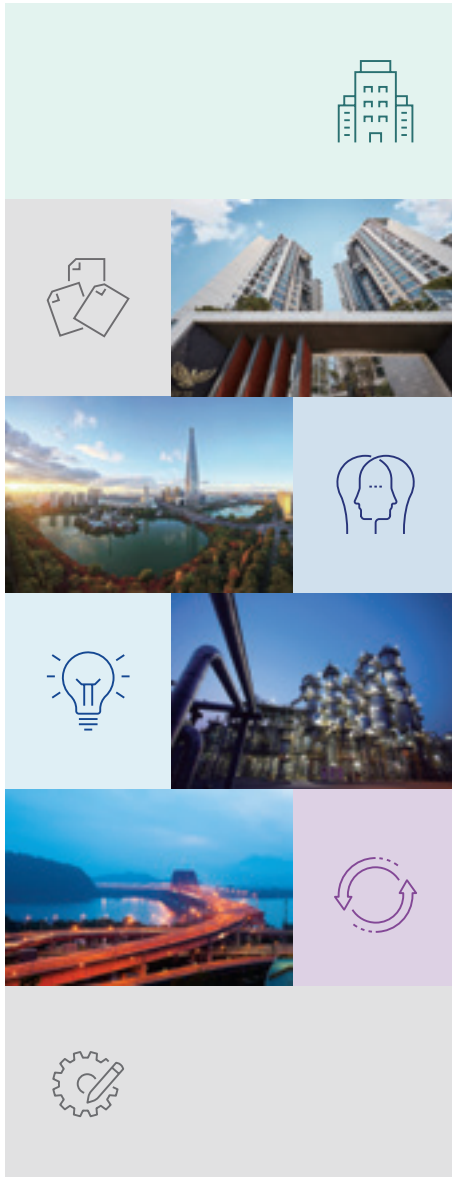
- Legal standards: KRW-USD average exchange rate for the year 2018 (for comparison purposes)

\* Year 2016: 1 USD = 1,160.50 KRW

\* Year 2017: 1 USD = 1,130.84 KRW

\* Year 2018: 1 USD = 1,100.30 KRW

# Contents



---

|                 |                         |
|-----------------|-------------------------|
| <b>Overview</b> | 02 About This Report    |
|                 | 04 Message from the CEO |
|                 | 06 Company Overview     |
|                 | 08 Corporate Governance |
|                 | 09 Risk Management      |

---

|                                    |                   |
|------------------------------------|-------------------|
| <b>Beyond Customer Expectation</b> | 12 HOUSING        |
|                                    | 18 BUILDING       |
|                                    | 28 PLANTS         |
|                                    | 34 INFRASTRUCTURE |
|                                    | 40 GLOBAL         |

---

|                  |   |
|------------------|---|
| <b>Challenge</b> | 50 Sustainability Management Strategies and System                |
|                  | 52 Strategic Response to Mega Trends in the Construction Industry |
|                  | 53 Stakeholders' Participation and Materiality Assessment         |
|                  | 54 Sustainable Development Goals (SDGs)                           |

---

|                |  |
|----------------|--|
| <b>Respect</b> | 58 Ethical Management based on Principles and Trust                    |
|                | 62 Establishment of Compliance   |
|                | 64 Creating a Safety-First Corporate Culture                           |
|                | 68 Efforts for Clean Future by Eco-Friendly Approach                   |
|                | 72 Creating Future Value through Technological Development             |
|                | 76 Achieving Customer Satisfaction                                     |
|                | 82 Win-Win Cooperation Partnership                                     |
|                | 86 Value Creation for the Local Community through Social Contributions |
|                | 88 People-Oriented Business  |

---

|                    |   |
|--------------------|---|
| <b>Originality</b> | 96 Key Performance in Sustainability Management |
|--------------------|---|

---

|                 |  |
|-----------------|--|
| <b>Appendix</b> | 103 GRI Standards Index                  |
|                 | 106 Third Party's Assurance Statement    |
|                 | 108 Memberships in Associations / Awards |

---

## Message from the CEO



“ LOTTE E&C will become a 100-year company by promising to fulfill its responsibility as a corporate citizen and striving to provide our customers with better value. ”



## 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.

As a result of these efforts, the company's business performance levels, measured in recent orders and revenues, have been continuously improving. However, the domestic and foreign business environment is expected to be difficult.

In order to adapt to this change in business environment, an internal task force team was created that set LOTTE E&C's mid to long-term strategy. In 2019, this strategy was re-aligned with the LOTTE Group's strategy and LOTTE E&C declared the Vision 2030.

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.

In 2019, LOTTE E&C marks its 60<sup>th</sup> anniversary. We would like to thank all customers and stakeholders who supported LOTTE E&C to make it the company it is today. LOTTE E&C promises to provide better values to our customers, and fulfill its obligation as a corporate citizen in order to grow sustainably to the 100<sup>th</sup> anniversary.

September 2019

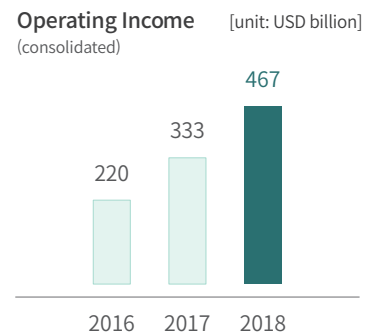
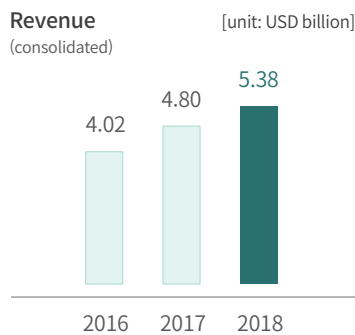
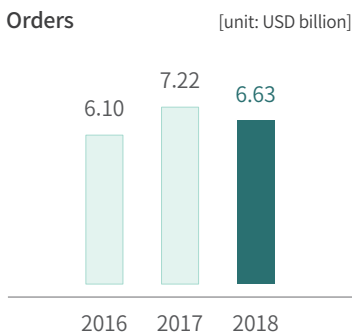
President and CEO **Suk Joo Ha**

*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 60<sup>th</sup> anniversary. We have tried to enhance our capabilities to become a global construction company by providing services across the entire value chain. Also, we have established our Vision 2030, which seeks to create a better future and pursue a phase-by-phase implementation strategy.

|                                |  |                                |  |
|--------------------------------|--|--------------------------------|--|
| <b>Company Name</b>            | LOTTE Engineering & Construction Co., Ltd. (LOTTE E&C)           | <b>Orders (2018)</b>           | USD 6.63 billion<br>(Backlog of orders : USD 23.94 billion)      |
| <b>Date of Establishment</b>   | February 3, 1959 (acquired by the LOTTE Group in 1978)           | <b>Revenue</b>                 | USD 5.38 billion (consolidated)<br>* USD 5.31 billion (separate) |
| <b>President and CEO</b>       | Suk Joo Ha (inaugurated in March 2017)                           | <b>Operating Income (2018)</b> | USD 467 million (consolidated)<br>* USD 438 million (separate)   |
| <b>Head Office</b>             | 29, Jamwon-ro 14-gil, Seocho-gu, Seoul, Korea                    | <b>Credit Rating</b>           | "A+" by NICE Investors Service (June 2019)                       |
| <b>Key Businesses</b>          | Housing, building, plants and infrastructure                     |                                |  |
| <b>Major Shareholder</b>       | LOTTE Chemical Corporation (43.79% stake)                        |                                |  |
| <b>Number of Employees</b>     | 3,218 persons (as of December 31, 2018)                          |                                |  |
| <b>Branches / Subsidiaries</b> | 1 domestic branch, 6 overseas branches / 5 overseas subsidiaries |                                |  |



\* revenue/operating income: based on consolidated financial statements

LOTTE GROUP Vision

## Lifetime Value Creator

LOTTE E&C Vision 2030

Global Leading EPC Contractor, Total Service Provider

LOTTE E&C 2019 Slogan

60 years of LOTTE E&C!  
To the World, to the Future!

## History

### 1959~1977

#### Foundation

**1959. 02**

Pyoung Hwa Construction, Inc. established

**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 8<sup>th</sup> 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**

50<sup>th</sup> anniversary of the LOTTE Group, Opened LOTTE World Tower

**2018. 07**

Established the Singapore branch office

**2019. 02**

Subsidiaries established 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**

60<sup>th</sup> anniversary of LOTTE E&C (September 15<sup>th</sup>)

## Contact Information of Overseas Branches and Subsidiaries

01

#### Branch Office, Indonesia

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

02

#### Representative Office, Vietnam (Hanoi Office)

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

03

#### Representative Office, Vietnam (Ho Chi Minh Office)

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

04

#### Branch Office, Japan

Hatsudai Center Building 810,  
Hatsudai 1-51-1 Shibuya District,  
Tokyo, Japan(Postal Code : 151-  
0061)  
+81-3-3373-5636

05

#### Branch Office, Moscow, Russia

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

06

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

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

07

#### Branch Office, Pakistan

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

08

#### Branch Office, Singapore

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

# Corporate Governance

## Corporate Governance

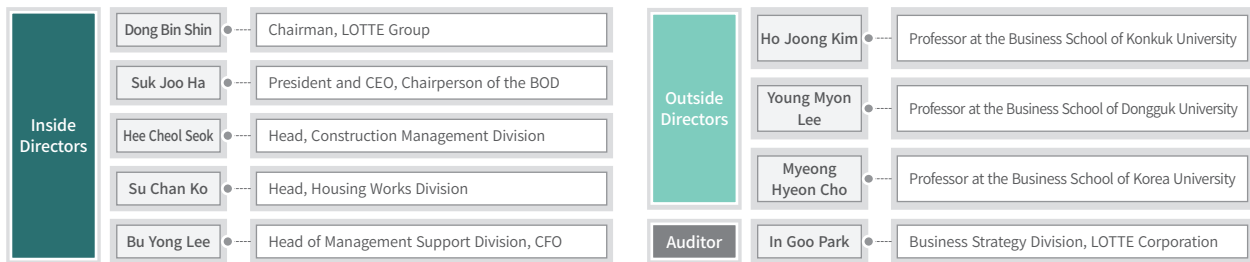
### Shareholder Status

As of the end of June 2019, LOTTE Chemical is the largest shareholder of LOTTE E&C with 43.79% stake. Including special affiliated persons, shareholders own 99.63% of the company.

### Operation and Composition of the BOD

LOTTE E&C's top decision-making body is the BOD (Board of Directors), which is made up of 5 inside directors and 3 outside directors, as of June 2019. 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 occasionally. In 2018, BOD meetings were held 14 times, and its members voted on 26 agenda items.

#### Composition of the BOD and Auditor (as of June 2019)



### Evaluation and Reward

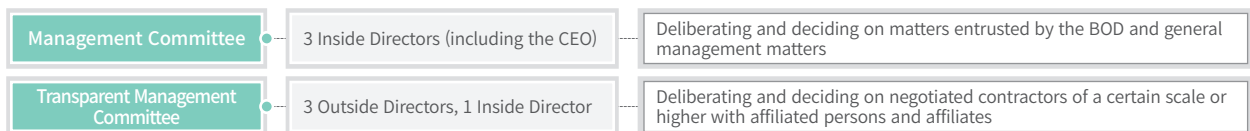
Financial and non-financial performances of the management are evaluated and yearly salaries and incentives are determined accordingly. They are rewarded within the limit approved at the general shareholder's meeting. In 2018, the total amount of compensation for directors (including non-registered executives) approved at the general shareholders' meeting was USD 25.45 million. USD 3.77 million was paid to registered directors during the year, with USD 0.72 million as the average compensation per individual.

### Subcommittees of the BOD

Consisting of 3 inside directors including the CEO, the Management Committee was set up in 2016 to deliberate and make decisions on issues entrusted by the BOD and other general management-related matters. In addition, the Transparent Management Committee comprising 3 outside directors and 1 inside director reviews private contracts with specially affiliated persons and subsidiary companies if the contracts exceed a certain amount.

In 2018, 26 Management Committee meetings were held to discuss 116 issues related to signing loan agreements and subcontract agreements and giving donations. In 2018, the Transparent Management Committee meeting was held once to make a decision on a contract to develop the next-generation ERP system.

#### Status of Subcommittees



### 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

## Risk Management System

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 capabilities and etc.  |
| Partner Risks    | Delays in the delivery and abandonment of construction work by partner companies, failure in financial structures / bankruptcy  | Discovering excellent partners at home and abroad, 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

10

11

LOTTE E&C businesses  
create values beyond customer expectation



LOTTE  
CASTLE





|    |                |
|----|----------------|
| 12 | HOUSING        |
| 18 | BUILDING       |
| 28 | PLANTS         |
| 34 | INFRASTRUCTURE |
| 40 | 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 optimizes its products, design, quality, and service competitiveness to become the No. 1 in brand power in Korea. With the mindset of building a house for our own families, we are working ceaselessly to listen carefully to the voice of customers (VOC) to reflect their preferences and provide the best products by analyzing product trends.

To respond to paradigm changes in the housing market, the company has expanded its asset management business and rental business. In 2018, the company launched a managing asset platform called Elyes for its tenants.

## Housing Works Strategy

- Reinvent product, design and quality & service for No.1 brand power.
- Improve internal competencies in the asset management and rental business





## Performance

(based on 2018 data)

- Orders **USD 3,769** million
- Revenue **USD 3,118** million

## Highlight

- Grand Prize (apartment housing sector) in the Korea Service Grand Prix for 18 consecutive years (Jul. 2019)
- 3<sup>rd</sup> in the National Customer Satisfaction Index (NCSI) (Jul. 2019)
- 3<sup>rd</sup> in the National Brand Competitiveness Index (NBCI) (Mar. 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



14  
15



**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. Wongju LOTTE Castle the First (Oct. 2015 ~ Jun. 2018)**

- Location : Wonju, Gangwon-do (Wongju Enterprise City)
- Summary : 2 stories below ground and 30 stories above, 10 buildings, 1,243 units

**4. Uijeongbu LOTTE Castle Gold Park (Mar. 2016 ~ Nov. 2018)**

- Location : Uijeongbu-dong, Uijeongbu, Gyeonggi-do
- Summary : 2 stories below ground and 27 stories above, 17 buildings, 1,850 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. Daeyeon LOTTE Castle Legend (Nov. 2014 ~ Feb. 2018)**

- Location : Daeyeon-dong, Nam-gu, Busan
- Summary : 6 stories below ground and 35 stories above, 30 buildings, 3,149 units

**7. Dongtan 2 LOTTE Castle (May 2016 ~ Jun. 2018)**

- Location : Hwaseong, Gyeonggi-do (Dongtan New Town 2)
- Summary : 6 stories below ground and 35 stories above, 30 buildings, 3,149 units (retal housing)

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

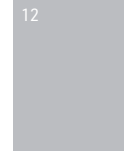
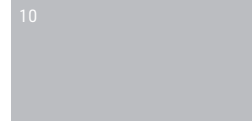
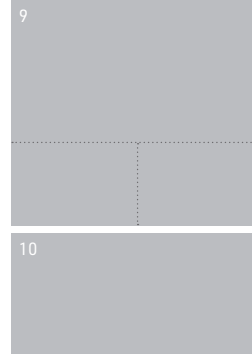
- Location : Gimpo, Gyeonggi-do (Gimpo Hangang New Town)
- Summary : 1 story below ground and 9 stories above, 32 buildings, 912 units (retal housing)





16  
17





**9. 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 (2,356 apartment units and 375 studio units, commercial facilities including LOTTE Mall Suji)

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

- Location : Yeongtong-gu, Suwon, Gyeonggi-do (Block 1 & 2 in Mangpo District 4 Urban Development Zone)
- Summary : 1 story below ground, 24 ~ 27 stories above, 26 buildings, 2,945 units
- Features : Joint project between LOTTE E&C and HDC Hyundai Development Company

**11. Cheongnyangni Station LOTTE Castle SKY-L65**  
(Jul. 2018 ~ Jul. 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 -- for instance, domestic/international urban development and urban renovation.

## 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 projects.
- Improve development capabilities to take advantage of expanded business opportunities in urban development and renovation





## Performance

(based on 2018 data)

- Orders **USD 1,547** million
- Revenue **USD 1,243** million

## Highlight

- Grand Prize at the Tekla BIM Awards Asia 2018 for LOTTE World Tower (Jun. 2018)
- Expanded business in Cambodia

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

- Summary : 6 stories below ground and 123 stories above, height of 555m, gross floor area of 420,310m<sup>2</sup>

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

- Summary : 6 stories below ground and 12 stories above, gross floor area of 385,562m<sup>2</sup>

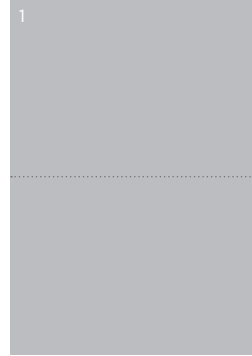


# High-Rise Buildings



20  
21





**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 420,310m<sup>2</sup>
- Features : South Korea's landmark as well as the world's 5<sup>th</sup> 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 385,562m<sup>2</sup>
- Features : Eco-friendly complex boasting of various facilities including duty-free shop, shopping mall, hypermarket, cinema, aquarium, and concert hall

# Multipurpose Facilities

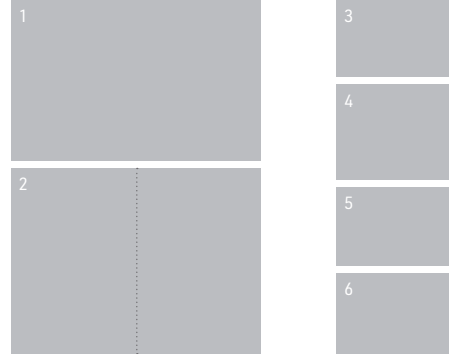


22

23







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

- Location : Jakarta, Indonesia
- Summary : 5 stories below ground and 41 ~ 43 stories above, gross floor area of 365,251m<sup>2</sup>, 2 apartment buildings (1,198 units) and 1 office building

### 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 253,134m<sup>2</sup>, 258 units for service residence, 318 rooms for the hotel, commercial and office area

### 3. New Arbat Multipurpose Building in Russia (Sep. 2003 ~ Aug. 2010)

- Location : Moscow, Russia
- Summary : 4 stories below ground and 21 stories above, gross floor area of 142,641m<sup>2</sup>

### 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 58,660m<sup>2</sup>

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

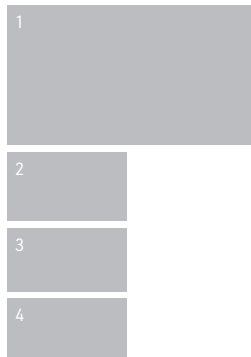
- Location : Hwaseong, Gyeonggi-do (Dongtan New Town 2)
- Summary : 6 stories below ground and 49 stories above, gross floor area of 505,189m<sup>2</sup>, residential, offices, department store, shopping mall, hypermarket and multiplex cinema

### 6. Giheung HIGGS Urban Advanced Industry Complex (Jan. 2017 ~ Oct. 2019 expected)

- Location : Yeongduk-dong, Giheung-gu, Yongin, Gyeonggi-do
- Summary : 5 stories below ground and 24 stories above, gross floor area of 198,236m<sup>2</sup>, knowledge industry center, residential, commercial and office area

# Retail Facilities

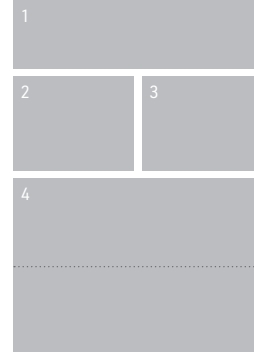
24  
25



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 175,031m<sup>2</sup>
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 213,566m<sup>2</sup>
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 316,152m<sup>2</sup>
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 45,279m<sup>2</sup>



# 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 105,201m<sup>2</sup>

## 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 172,551m<sup>2</sup>

## 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)

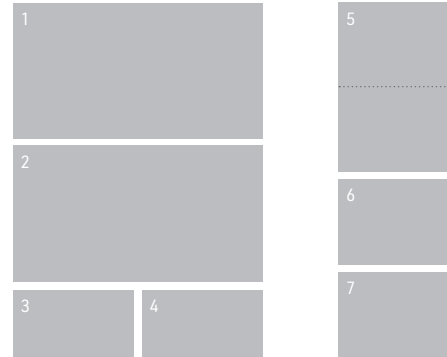
- Location : Daepo-dong, Sokcho, Gangwon-do
- Summary : 3 stories below ground and 9 stories above, 392 rooms (173 rooms for the hotel, and 219 rooms for the condominium)

# Airport / Logistics / Educational and Research Facilities



26  
27





**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 139,038m<sup>2</sup>

**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 66,690m<sup>2</sup>

**3. LOTTE Mart Online Mall Gimpo Center (Jun. 2014 ~ Feb. 2016)**

- Location : Gochon Logistics Center in Gimpo, Gyeonggi-do
- Summary : 1 story below ground and 5 stories above, gross floor area of 30,869m<sup>2</sup>

**4. Yeongjongdo Integrated Logistics Center 2 (Sep. 2013 ~ Aug. 2014)**

- Location : Free Trade Zone, Unseo-dong, Jung-gu, Incheon
- Summary : Gross floor area of 50,439m<sup>2</sup>

**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 20,135m<sup>2</sup>

**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 24,666m<sup>2</sup>

**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 82,929m<sup>2</sup>

# PLANTS

LOTTE E&C is involved in constructing national and industrial infrastructures in many areas at home and abroad, 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 2018 data)

- Orders **USD 290 million**
- Revenue **USD 402 million**

## Highlight

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

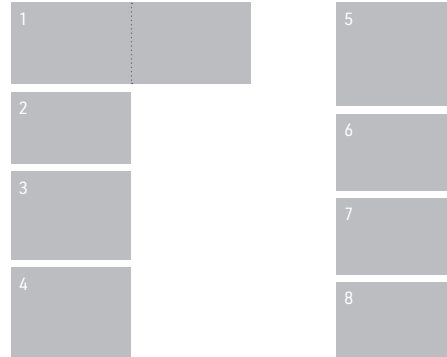


# Petrochemical Plants



30  
31

1. TE-3 Project in Malaysia (Feb. 2016 ~ Jul. 2017)
  - Location : Pasir Gudang, Johor, Malaysia
  - Summary : Ethylene 91KTA<sup>1)</sup>, Propylene 125KTA, BTX<sup>2)</sup> 134KTA production plant
2. TPP3 Project in Malaysia (Dec. 2016 ~ Jun. 2018)
  - Location : Pasir Gudang, Johor, Malaysia
  - Summary : PP<sup>3)</sup> 200KTA production plant
3. LOTTE Chemical H-NC3 Project (May 2017 ~ Oct. 2018)
  - Location : Jungheung-dong, Yeosu, Jeollanam-do
  - Summary : BD<sup>4)</sup> 20KTA, BTX 40KTA production plant expansion, NCC<sup>5)</sup> Plant Heater & GTG<sup>6)</sup>
4. Indonesia ASC P6 PKG1 Project (Dec. 2013 ~ Jan. 2016)
  - Location : Cilegon, Indonesia
  - Summary : EDC<sup>7)</sup> / VCM<sup>8)</sup> 400KTA production plant



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

- Location : Jungheung-dong, Yeosu, Jeollanam-do
- Summary : IPM<sup>9)</sup> 32KTA, DCPD<sup>10)</sup> 12KTA, PIP<sup>11)</sup> 46KTA production plant

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

- Location : Jungheung-dong, Yeosu, Jeollanam-do
- Summary : PC<sup>12)</sup> 110KTA, DMC<sup>13)</sup> 29KTA production plant expansion

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

- Location : Sanggae-dong, Nam-gu, Ulsan
- Summary : MeX<sup>14)</sup> 200KTA production plant

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

- Location : Jungheung-dong, Yeosu, Jeollanam-do
- Summary : POE<sup>15)</sup> 10KTA production plant

1) KTA : Kilo Tons per Annum (Metric Ton)    9) IPM : Isoprene Monomer  
 2) BTX : Benzene, Toluene, Xylene    10) DCPD : Dicyclopentadiene  
 3) PP : Polypropylene    11) PIP : Piperylene  
 4) BD : Butadiene    12) PC : Poly Carbonate  
 5) NCC : Naphtha Cracking Centor    13) DMC : Dimethylcarbonate  
 6) GTG : Gas Turbine Generator    14) MeX : Meta Xylene  
 7) EDC : Ethylene Dichloride    15) POE : Polyolefin Elastomer  
 8) VCM : Vinyl Chloride Monomer



# Power Plants



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

- Location : Near Surabaya in Java, Indonesia
- Summary : LNG Combined Cycle Power 501MW  
(two units of GT<sup>1)</sup> 151.4MW, one unit of ST<sup>2)</sup> 198.2MW,  
and two units of HRSG<sup>3)</sup>)
- Features : LOTTE E&C's first power plant project in Indonesia

**2. Seoul Combined Cycle Power Plant 1 and 2**  
(Oct. 2015 ~ Dec. 2019 expected)

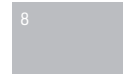
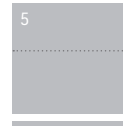
- Location : Hapjeong-dong, Mapo-gu, Seoul  
(former thermoelectric power plant in Dangin-ri)
- Summary : 2 units each rated at 400MW (800MW) (GT 267.5MW 2  
units, ST 127.9MW 2 units, HRSG 256Gcal/h 2 units)
- Features : The world's first underground combined cycle power  
plant project

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

- Location : Yulam-dong, Dong-gu, Daegu
- Summary : 415MW (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/H<sup>4)</sup>)



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

- Location : Al Manakher, Jordan
- Summary : 573MW (38 units 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 facilities, 45Gcal/h heating facilities (ST 22MW 1 unit, SRF<sup>5)</sup> boiler 1 unit)

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 CFBC<sup>6)</sup> Boiler 950T/H and STG 250MW)

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).

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.

We are strengthening our position in business sectors where we are already competitive, and we boast of an impressive track record. Such sectors include ground transportation facilities (roads, rail, subway), site renovations, water treatment facilities, and ports. Specifically, we are strengthening our position by introducing differentiable products with high marketability and improving our planning, feasibility studies, and technologies for a wide array of different business models (build-only, turnkey, public-private partnership).

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

- Obtained competitive differentiation in all types of ground transportation facilities
- Increase capability in technology proposals and public-private partnership-based project



## Performance

(based on 2018 data)

- Orders **USD 1,020** million
- Revenue **USD 522** million

## Highlight

- Grand Prize in the Road & Transportation Category at the 14th Civil Engineering Technology Awards (Suspension Bridge, Sandal-do Island, Nov. 2018.)
- Participated in the private investment (BTO-rs)-based project for constructing the Sin Ansan Line double track railway

### Sandaldo Bridge (Sep. 2013 ~ Dec. 2018)

- Location : Geoje-myeon, Geoje, Gyeongsangnam-do
- Summary : Total 1.413km, width 11.0 - 15.7m, total 2 lanes (cable-stayed bridge 280m, approach bridge 320m, connecting road 793m)
- Features : Maritime cable-stayed bridge



# Ground Transportation



36



37



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

- Location : Bundang-gu to Jungwon-gu, Seongnam, 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 : Uiseong-gun to Yeongdeok-gun, Gyeongsangbuk-do
- Summary : Total 34.86km, total 4 lanes, 32 bridges (5.091km), 9 tunnels (10.953km), 1 service area (Uiseong)

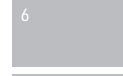
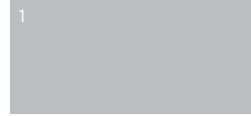
**3. Seocho Station ~ Bangbae Road Connecting Road Construction (Seoripul Tunnel) (Oct. 2015 ~ May 2019)**

- Location : Bangbae-dong to Seocho-dong, Seocho-gu, Seoul
- Summary : Total 1.28km, total 6~9 lanes, tunnel(0.4km)

**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 to Bangi-dong, Songpa-gu, Seoul
- Summary : Total 1.391km (TBM Shield Tunnel 945m, Open Cut BOX 119m), 1 station (Songpanaru)

**6. Dongi 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)

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

- Location : Jung-gu to Yeongdo-gu, Busan
- Summary : Total 0.215km, total 6 lanes (bascule bridge)

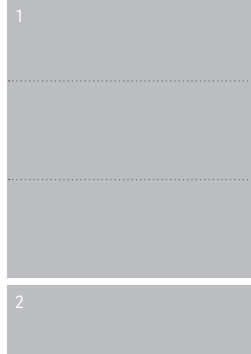
**8. Eulsukdo Bridge Private Investment Construction Project**  
(Jan. 2005 ~ Jan. 2010)

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

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

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

# Water Treatment Systems



38

39

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

- Location : Sangdo-dong, Nam-gu, Pohang  
(within the Pohang Sewage Treatment Plant)
- Summary : Site area of 16,122m<sup>2</sup>, building area of 2,282m<sup>2</sup>,  
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 : Seo-gu, Incheon (Cheongna International City)
- Summary : Total area of 1,360,105m<sup>2</sup>, 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 950,640m<sup>2</sup>, 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 : 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 2,800,000m<sup>2</sup>, ground cutting of 8,523,919m<sup>3</sup>, ground fill-up of 6,281,776m<sup>3</sup>, water supply pipeline of 50,015m, rainwater pipeline of 41,492m, and sewage pipeline of 26,320m

# GLOBAL

Overseas business offers many opportunities as well as risks. Therefore, with the goal of achieving stable, 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, the company has shifted much of its sales activities to its local branch offices to be in a better position to secure new projects. In 2019, it established local real estate development corporations in the two countries to pursue investment-based development projects in earnest. Furthermore, to enter the 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.

40  
41

## Overseas Business Strategy

- Pursue growth with a business model tailored for each country and type of product
- 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





Da Nang - Quang Ngai Expressway Construction  
Package A4 in Vietnam

## Performance

(based on 2018 data)

- Orders **USD 583 million**
- Revenue **USD 276 million**  
(overseas subsidiaries included)

## Highlight

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



TE-3 Project in Malaysia



Kota Kasablanka Phase 2 in Indonesia



# Southeast Asia

42  
43



## 1. 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 253,134m<sup>2</sup>, 258 units for service residence, 318 rooms for hotel, commercial and office area

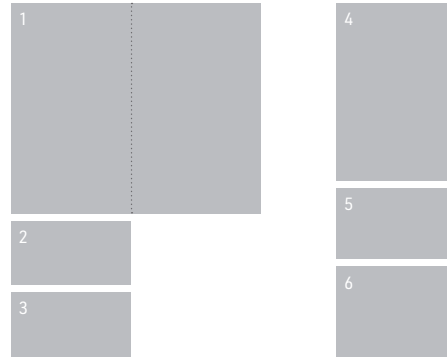
## 2. Yen Vien-Lao Cai Railway Upgrading Project Construction Package No.3 in Vietnam (Mar. 2013 ~ Jul. 2015)

- 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





**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 365,251m<sup>2</sup>, 2 apartment buildings (1,198 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 (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



44  
45

- 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
- 9. Sathapana Bank HQ building, Cambodia (May 2018 ~ Jul. 2020 expected)
  - Location : Phnom Penh, Cambodia
  - Summary : 4 stories below ground and 19 stories above, gross floor area of 33,135m<sup>2</sup>





|    |  |
|----|--|
| 10 |  |
| 11 |  |
| 12 |  |
| 13 |  |

**10. La Premier Development Project in Ho Chi Minh City, Vietnam (2018 ~ 2021 expected)**

- 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. Phase 3 of Saumata Co-housing Development Project in Tangerang, Indonesia (2018 ~ 2022 expected)**

- Location : Tangerang, Jakarta, Indonesia (new city of Alam Sutera)
- Summary : 1 story below ground and 39 stories above, 2 buildings, 502 units
- Features : Joint Venture with PT. GWP, local developer, and LOTTE E&C's first housing development project in Southeast Asia

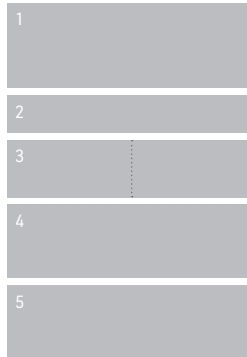
**12. Blue Star Development Project in Ho Chi Minh City, Vietnam (2018 ~ 2022 expected)**

- Location : Ho Chi Minh City District 7, Vietnam
- Summary : 2 stories below ground and 35 stories above, 6 buildings with 1,270 units, 480 studios
- Features : Business Cooperation Contract with Hung Loc Phat, local developer

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

- Location : Nam Tu Liem, Hanoi, Vietnam
- Summary : Villas and townhouses with 4~5 stories above ground, apartments with 1 story below ground and 12 stories above, 2 buildings - 1,015 units in all
- Features : Joint Venture with FLC Group, local developer

# Middle East / Southwest Asia

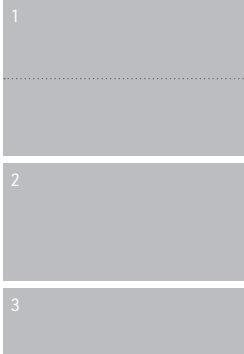


46  
47

1. Gulpur Hydropower Plant in Pakistan (Sep. 2014 ~ Jan. 2020 expected)
  - 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 ~ Oct. 2019 expected)
  - 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. New Arbat Multipurpose Building in Russia (Sep. 2003 ~ Aug. 2010)

- Location : Moscow, Russia
- Summary : 4 stories below ground and 21 stories above,  
gross floor area of 142,641m<sup>2</sup>

## 2. Moscow LOTTE Business Center (Jan. 2011 ~ Feb. 2013)

- Location : Moscow, Russia
- Summary : 2 stories below ground and 22 stories above,  
gross floor area of 58,660m<sup>2</sup>

## 3. 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

An aerial photograph of Lotte World amusement park in Seoul, South Korea, during sunset. The park's iconic castle, Lotte World Tower, and various roller coasters are visible, surrounded by a large lake. In the background, a dense urban skyline with numerous high-rise apartment buildings is visible under a sky with scattered clouds and a warm, golden glow from the setting sun.

48

49

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

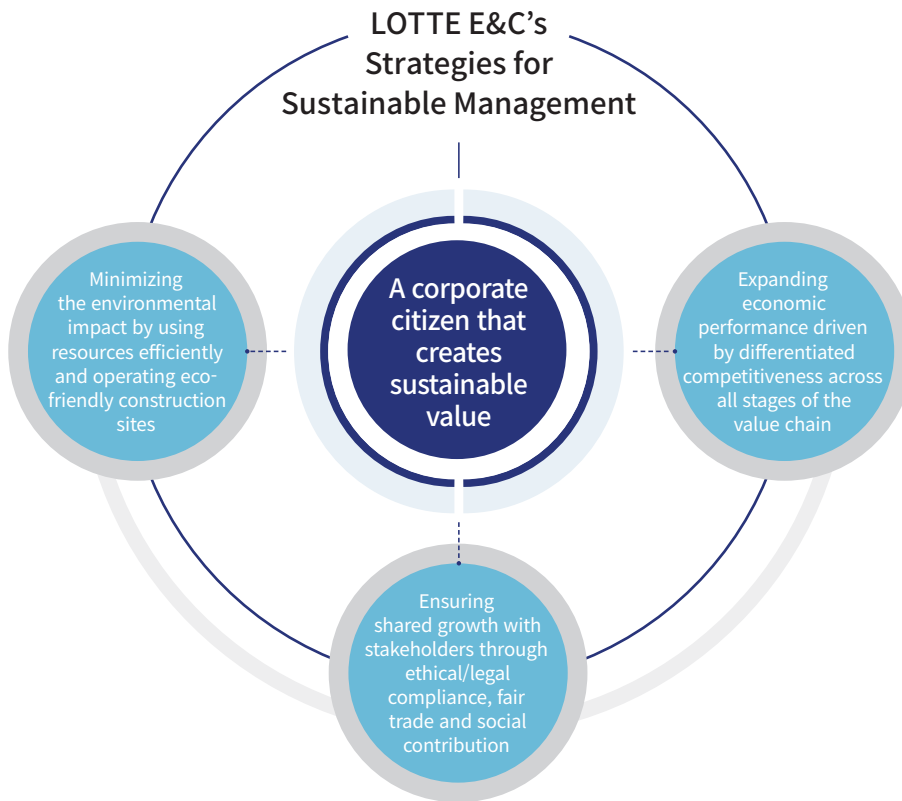
- 50 Sustainability Management Strategies and System
- 52 Strategic Response to Mega Trends in the Construction Industry
- 53 Stakeholders' Participation and Materiality Assessment
- 54 Sustainable Development Goals (SDGs)





# Sustainability Management Strategies and System

## Sustainability Management Strategy

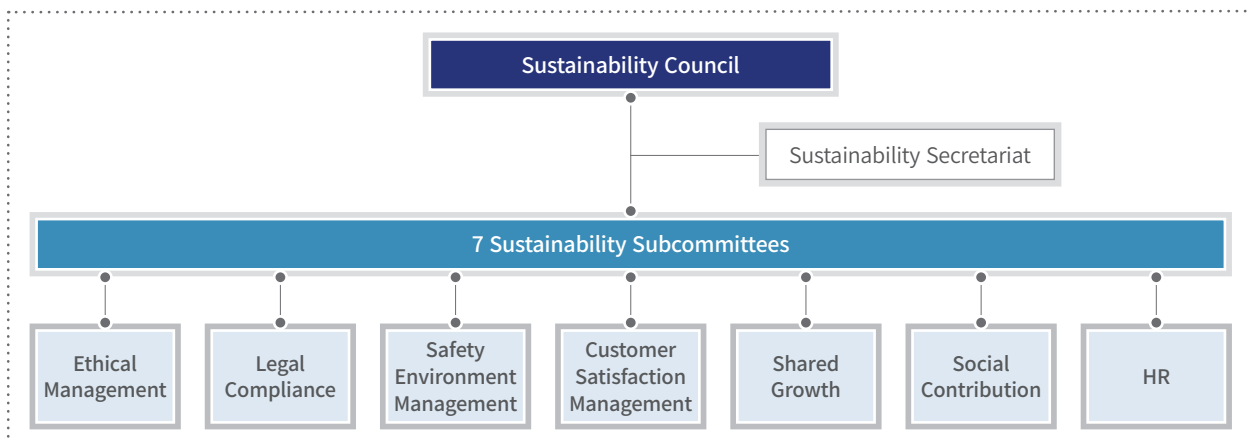


50  
51

## 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.

In February 2018, the Legal Compliance Subcommittee was newly established. This subcommittee works with the Legal and Compliance Department to diagnose and manage compliance risks that could arise in business operations.





## Strategies and Performance Results of Subcommittees

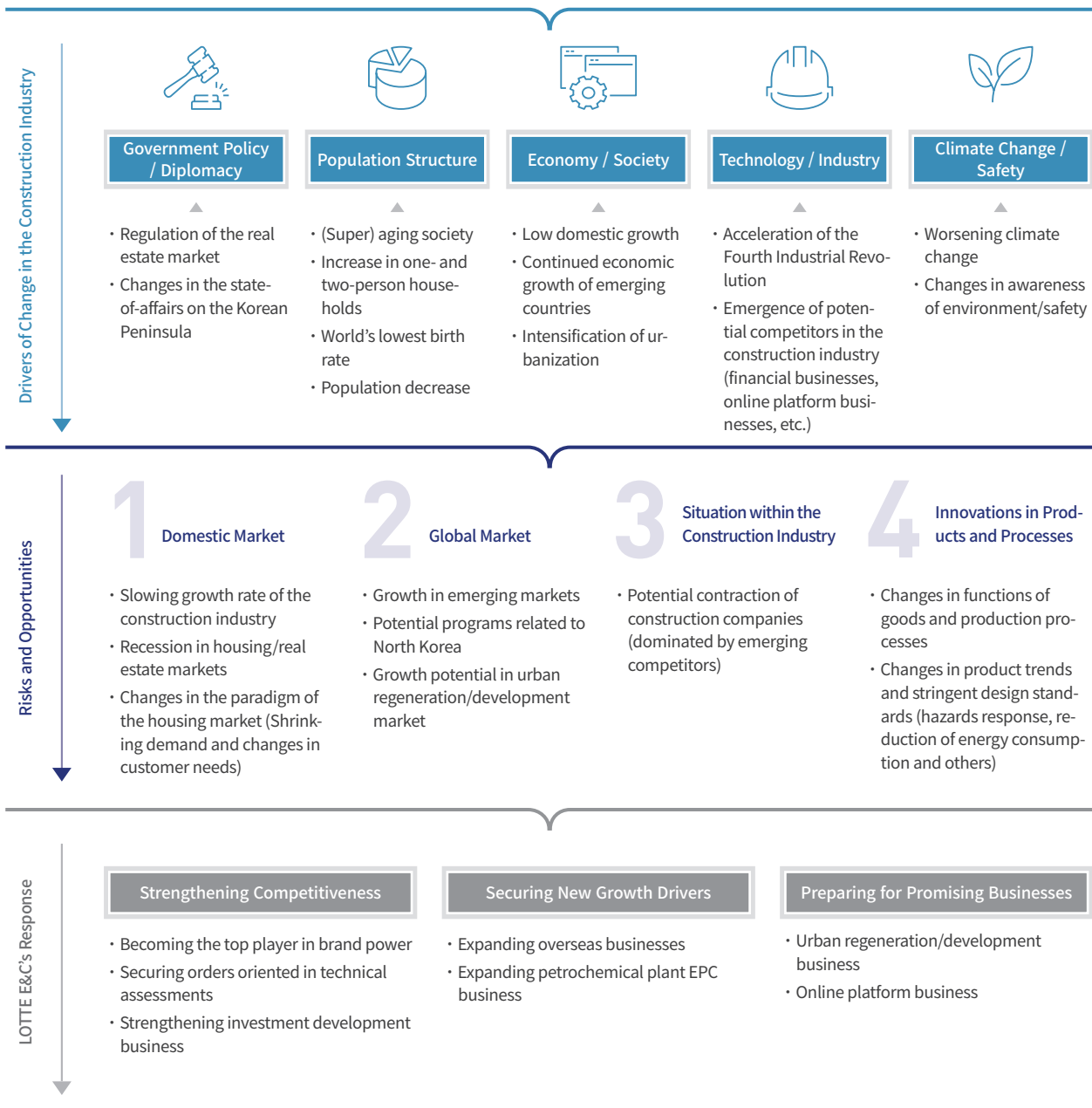
| Subcommittee                     | Strategy Objectives   | Strategy Direction  | 2018 Performance Results   |  |  |  |
|----------------------------------|---|---|--|--|--|--|
| Ethical Management               | Become an ethical company that operates based on principle and trust          | <ol style="list-style-type: none"> <li>Enhance ethical management implementation system</li> <li>Build employees' ethical awareness</li> <li>Enhance the communication program for ethical management</li> </ol>                                | <b>96</b> points<br>Ethical management evaluation score  | <b>67</b> cases<br>Number of post-audit improvement cases  | <b>3,218</b> employees<br>Number of employees attended education sessions on ethical management                          | <b>466</b> cases<br>Number of reports through cyber ombudsman channel                                |
| Legal Compliance                 | Leading company of compliance culture   | <ol style="list-style-type: none"> <li>Operate an effective compliance program</li> <li>Internalize and raise employees' awareness of legal compliance</li> <li>Preemptive management of risks</li> </ol>                                       | <b>Compliance Team</b><br>Launch of an organization dedicated to compliance  | <b>3,546</b> employees<br>Number of employees* who have received compliance education (* Daily workers included) | Distribute compliance regulations, and subcontracting guidelines   | Started the operation of compliance channel  |
| Safety Environment Management    | Achieve the first ZERO fatalities year  | <ol style="list-style-type: none"> <li>Strengthen Technological Safety</li> <li>Enforce Safety of Equipments</li> <li>Promote a culture of safety</li> </ol>  | <b>0.43</b> %<br>Industrial accident rate  | <b>1,199</b> times<br>Number of site safety inspections  | <b>3,309</b> attendees<br>Total number of employees attending safety education (Employees of partner companies included) |  |
|                                  | ZERO waste disposal rate  | <ol style="list-style-type: none"> <li>Increase awareness of green environment</li> <li>Expand Environment-friendly businessess</li> <li>Establish first response systems to environmental regulations</li> </ol>                               | <b>48,698</b> tCO <sub>2</sub> e <sub>q</sub><br>Accomplished target reduction rate (5.29%) comparison with GHG emission forecast rate | <b>USD 53.69</b> million<br>Procurement Records of Certified Eco-friendly Products                               | <b>USD 21.98</b> million<br>R&D expenditure  |  |
| Customer Satisfaction Management | Create value to customers with products and services of the highest quality   | <ol style="list-style-type: none"> <li>Develop products based on customer needs</li> <li>Precision construction / Quality innovation</li> <li>Strengthen customer service</li> </ol>  | <b>101</b> times<br>Quality inspections completed  | <b>16</b> sessions<br>Quality Innovation Academy   | <b>98.4</b> %<br>satisfaction level<br>Satisfaction rate of the Castle Clean Service                                     | Announced <b>AZIT 2.0</b><br>Housing Product Design Concept  |
| Shared Growth                    | A company that leads shared growth based on fair trade and mutual interaction | <ol style="list-style-type: none"> <li>Build a fair trading relationship</li> <li>Reinforce the support system for partner companies</li> <li>Establish trust with partner companies</li> </ol>   | <b>USD 28.92</b> million<br>Total financial support  |  | Rated <b>Excellent</b><br>on shared growth indicator   |  |
| Social Contribution              | A company that seeks growth with local communities by sharing love            | <ol style="list-style-type: none"> <li>Expand the flagship social contribution program</li> <li>Launch social contribution activities that are beneficiary-oriented</li> <li>Establish a culture of voluntary employee participation</li> </ol> | <b>USD 4.27</b> million<br>Social contribution expenditure   | <b>202</b> teams<br>No. of Charlotte Voluntary Service Corps   | <b>7,648</b> hours<br>Service time of Charlotte Voluntary Service teams  | <b>1,801</b> employees<br>Total number of employees that took part in social contribution activities |
| HR                               | A sustainable company by improving future values                              | <ol style="list-style-type: none"> <li>Build a culture where diversity is a fundamental feature</li> <li>Strengthen practice of corporate culture</li> <li>Cultivate human talent needed for sustainable business growth</li> </ol>             | <b>3,218</b> employees<br>No. of employees who attended educational programs   | <b>113</b> hours<br>No. of hours of education per employee   | <b>USD 3.14</b> million<br>Total expenditure on education  |  |

# 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 above efforts, 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’.



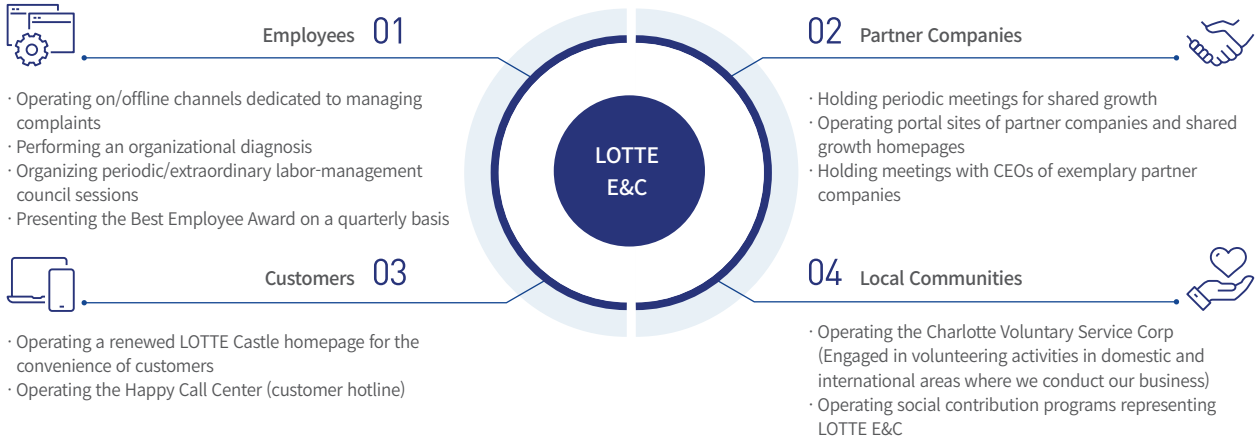
Becoming a ‘Global Leading EPC Contractor, Total Service Provider’



# 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.

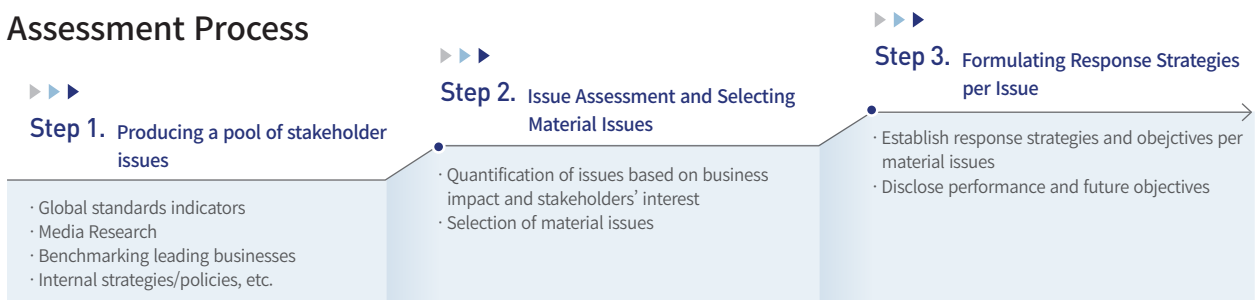


## Materiality Assessment

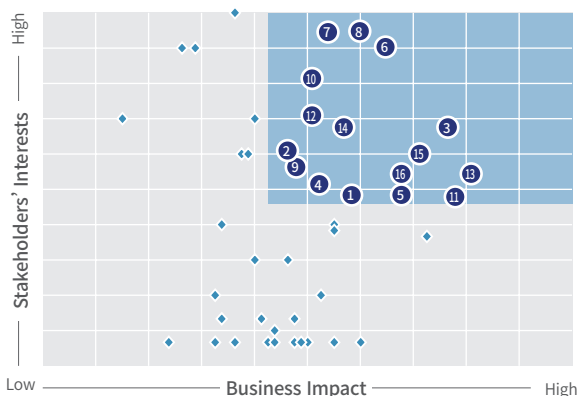
Every year, we perform a materiality assessment in order to identify and select the issues that our stakeholders consider important. In 2018, we established a pool of stakeholder issues based on the requirements of global standards, such as the Global Reporting Initiative (GRI), a global standard for devising sustainable management reports, the ISO 26000 and the UN's Sustainable Development Goals (SDGs), etc., which are standards for corporate social responsibility (CSR). We conducted the materiality assessment, over a two week period\*, based on the pool of issues gathered, and selected 16 out of the 45 material issues raised as a result of the assessment, which consisted of media research, benchmarking of leading businesses, and analyses of internal strategies and policy issues, as well as an internal/external questionnaire-based survey. We intend to disclose the results of the major activities carried out in the year concerning the selected issues in our sustainable management report.

\* Period of materiality assessment : May 20-June 5, 2019

## Assessment Process



## Results of Materiality Assessment



## Main Issues Category

| No. | Main issues on 2018   | GRI Standards Topic                     | Page  |
|-----|---|---|---|
| 1   | Strengthen ethical management (through the relevant education and campaigns)  | GRI 205: Anti-Corruption                | Ethical Management based on Principles and Trust 58p                    |
| 2   | Compliance management   | GRI 403: Occupational Health and Safety | Establishment of Compliance 62p   |
| 3   | Disseminate safety culture, enhance safety awareness, and perform proactive safety management activities  | GRI 307: Environmental Compliance       | Creating a Safety-First Corporate Culture 64p                           |
| 4   | Proactively respond and abide environmental regulations   | GRI 305: Emissions                      | Efforts for Clean Future by Eco-Friendly Approach 68p                   |
| 5   | Addressing climate change (greenhouse gas emissions, carbon offsets, carbon pricing, reduction of air-polluting materials, etc.)                      | GRI 301: Materials                      | 70p   |
| 6   | Eco-friendly products and services (green buildings, develop eco-friendly products, etc.)   | Non-GRI                                 | 72p   |
| 7   | Strengthen R&D capability   | GRI 417: Marketing and Labeling         | Creating Future Value through Technological Development 76p             |
| 8   | Strengthen customer satisfaction activities (enhance customer convenience and product quality, etc.)  | GRI 415: Customer Health and Safety     | Achieving Customer Satisfaction 80p                                     |
| 9   | Take into consideration customers' health and safety  | GRI 414: Supplier Social Assessment     | Win-Win Cooperation Partnership 82p                                     |
| 10  | Mutual growth and win-win cooperation (financial / technical / HR development support, etc.)  | GRI 413: Local Communities              | Value Creation for the Local Community through Social Contributions 86p |
| 11  | Systematic operation of social contribution activities (social contribution, finding solutions to social issues, etc.)                                | GRI 401: Employment                     | 88p   |
| 12  | Recruitment, work-life balance (paternal leave, etc.)   | GRI 404: Training and Education         | People-Oriented Business 88p  |
| 13  | Enhance employees' capabilities (education, training, etc.)   | GRI 201: Economic Performance           | Mega Trend, Beyond Customer Expectation, Economic Performance 96p       |
| 14  | Secure new growth engines (diversification of business, entering new markets, etc.)   | GRI 102: Governance                     | Corporate Governance 8p   |
| 15  | Create direct economic results (revenue, profit, etc.)  |   |   |
| 16  | Healthy governance structure (launch relevant committees, directors' remuneration-related policies, the role of governance for risk management, etc.) |   |   |

# 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 effects on our society and developing a wide range of projects and programs.



## 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.

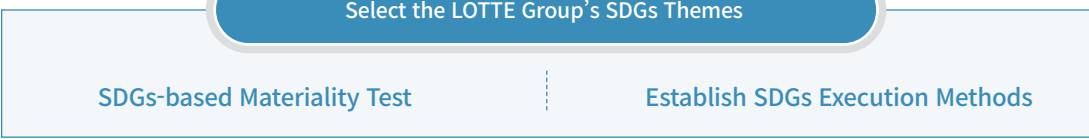
Guided by these directions, LOTTE E&C, as a sustainable company, intends to further fulfill its obligations as a corporate citizen that contributes to building a sustainable society.

### 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

54

55



## 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 11<sup>th</sup> Goal of SDGs : Sustainable Cities and Communities.

### Green Design and Purchase of Eco-Friendly Materials

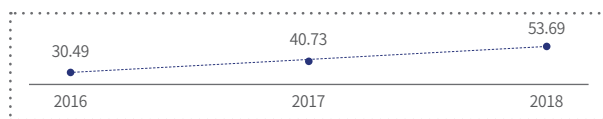


#### SDGs Target 11.6

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.

Across all phases of a project, LOTTE E&C takes into account the eco-friendly factors in the design, construction, and maintenance of the completed project. First, LOTTE E&C has been consistently given Green Building certifications since 2013 for its contributions to reducing energy consumption and environmental pollution. In 2018, the company received the highest rating for Geumcheon LOTTE Caste Gold Park (Phase 3). Through environment-friendly designs, the company contributes to suppressing global warming and reducing the consumption of energy and water resources. A case in point is the Jamsil LOTTE World Tower, which relies on renewable energy supply like fuel cells, geothermal energy, and areawide hydrothermal energy. The Incheon Port International Passenger Terminal completed in 2019 is based on an eco-friendly design that incorporated elements such as eco-friendly refrigerants, highly efficient insulation, geothermal energy, and rainwater treatment facilities. In addition, LOTTE E&C is taking the lead in protecting the environment by procuring certified eco-friendly products every year.

#### Procurement Records of Certified Eco-friendly Products [unit: USD million]



LOTTE E&C will take the lead in building sustainable buildings and cities by reducing the negative environmental impacts of cities through the active utilization of eco-friendly and future energy technologies that lead green growth.

#### Eco-friendly Certification of Main Projects

| Project                                       | Main Activities   | Achievements   |
|---|---|--|
| LOTTE World Tower                             | <ul style="list-style-type: none"> <li>Installation of renewable energy generators such as solar and wind power.</li> <li>Utilize fuel cells, geothermal energy, and areawide hydrothermal energy through eco-friendly designs</li> </ul> | <ul style="list-style-type: none"> <li>Top Certification in G-SEED</li> <li>The LEED Gold</li> </ul> |
| Incheon Port International Passenger Terminal | <ul style="list-style-type: none"> <li>Adopt green refrigerants, and highly efficient insulation</li> <li>Utilize geothermal energy and rainwater through eco-friendly designs</li> </ul>   | <ul style="list-style-type: none"> <li>Top Certification in G-SEED</li> </ul>                        |

### 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 the volunteering program run by LOTTE E&C to improve the residence of low-income people and the environments of social welfare facilities. Through this program, the company is helping members of local communities to enjoy the right to live in adequate housing as well as support the provision of basic social services.

The Love House Volunteer Activities began in 2012. By the end of 2018, volunteer activities have been done in 27 places in Seoul, and 32 places in Busan. In 2018, around 20 employees participated in volunteer work in the Geumcheon-gu and Dongdaemun-gu districts of Seoul and Nam-gu district in Busan. They renovated facilities for the disabled, local child care centers, public restrooms, and houses of low-income families. They installed heating equipment and remodeled spaces such as : dilapidated kitchens, floors, walls, and ceilings to ensure a warm winter for the residents. Together with environmental improvement works, the company also supplied households with appliances like washing machines, vacuum cleaners, and air conditioners to help them lead more comfortable lives. In 2019, the company plans to make renovations to the Geumcheon-gu Office and Dongdaemun-gu Office buildings in Seoul and 3 other facilities in the Nam-gu district of 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 create mutual growth.





# Respect

56

57

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

- 58 Ethical Management based on Principles and Trust
- 62 Establishment of Compliance
- 64 Creating a Safety-First Corporate Culture
- 68 Efforts for Clean Future by Eco-Friendly Approach
- 72 Creating Future Value through Technological Development
- 76 Achieving Customer Satisfaction
- 82 Win-Win Cooperation Partnership
- 86 Value Creation for the Local Community through Social Contributions
- 88 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.

58

59

### 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

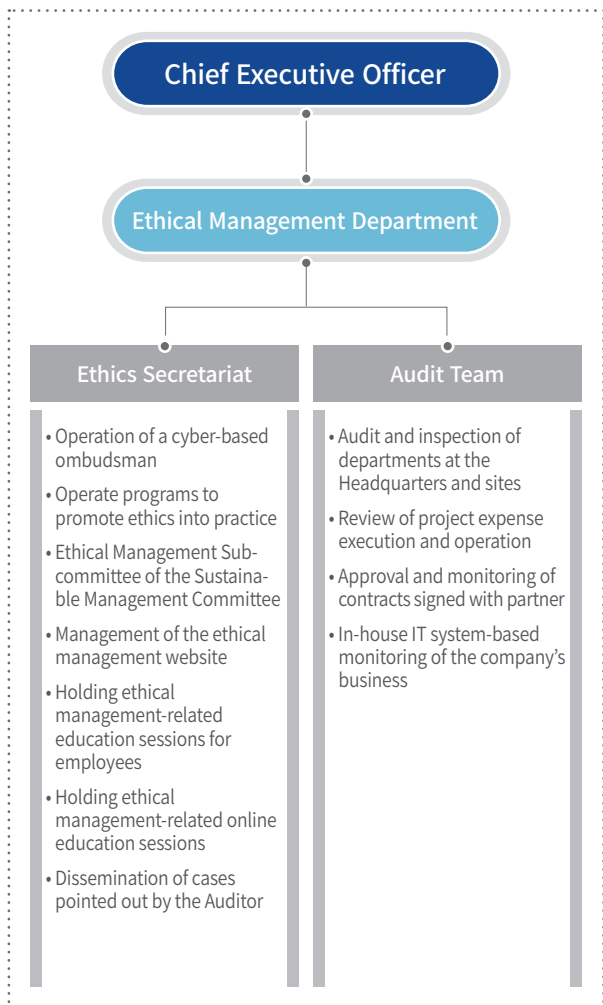
We have two units dedicated to ethical management, namely the Ethics Secretariat and the Audit Team, both of which report directly to the Chief Executive Officer.

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





## 2018 Key Performance

Ethical Management Evaluation Score



**96** points

Number of Post-audit Improvement Cases



**67** cases

\* Evaluation conducted by LOTTE Academy (in April 2019)

\* Basis of evaluation: The four main themes of LOTTE's Code of Conduct

Number of Employees Attended Education Sessions on Ethical Management



**3,218** employees

Number of Reports through Cyber Ombudsman Channel



**466** cases



### Enhancing Employees' Ethic Awareness through Education

We adopted the Lotte Code of Ethics in 2000, and announced complemented LOTTE Employees' Code of Ethics in 2014.

Two years later, we published the Lotte Group's Ethical Management Q&A BOOK, which contains concrete guidelines about the Company's code of ethics.

In 2015, we began holding educational sessions for employees on the Lotte Employees' Code of Ethics in conjunction with our Behavioral Norms and Rules. As for local employees recruited at worksites outside Korea, the relevant education is carried out under the supervision of the branch manager. In 2018, a total of 3,218 employees attended the educational sessions.

We shall continue operating diverse ethical management-related educational programs tailored to the needs of specific groups of employees by taking their characteristics into account.

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



### The Four Main Themes of LOTTE's Code of Conduct

#### Trust with LOTTE Employees

- We make a strict distinction between public and private affairs and provide fair opportunity.
- Everyone is a cherished member of someone's family.
- Everything begins with safety.
- Honest and accurate records reinforce the value of our passion and effort.
- Company assets belong to all LOTTE employees.
- We need to protect our valuable intellectual property.
- Negligence can cause information leakage.
- Even trivial favors create a sense of indebtedness.
- You must never use insider information for your personal gain.
- Politics and the economy can play their roles effectively when they are separated.

#### Trust with our Customers

- Be the number one brand for our customers.
- The easiest way to gain our customers' trust is through honesty.
- Customer information is extremely important to us.

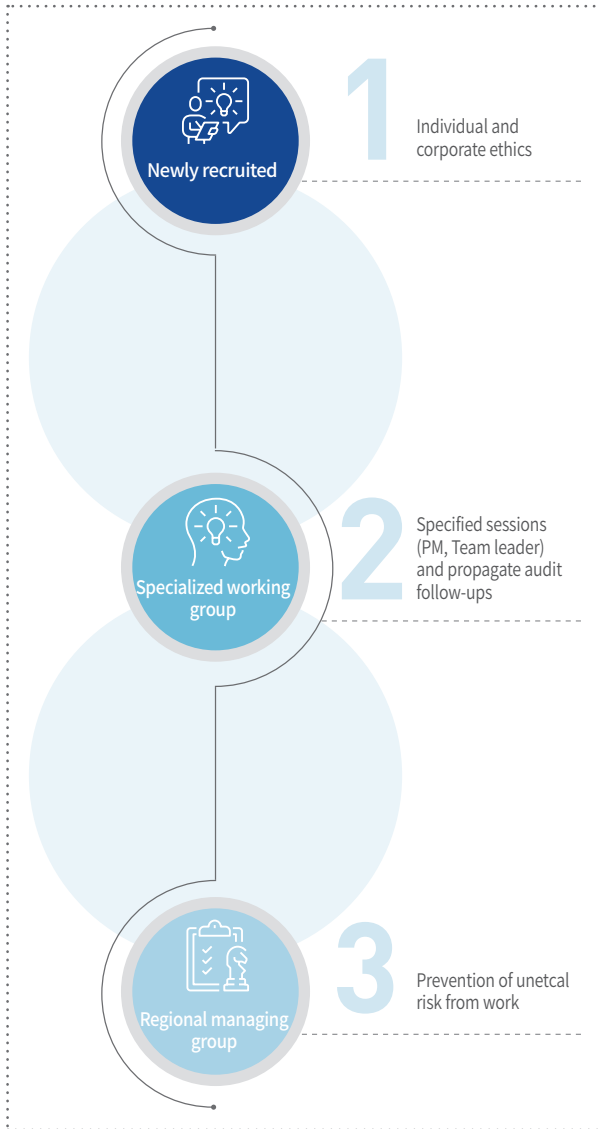
#### Trust with our Partners

- Fairness and trust allow us to work as one team with our partners.
- The partnership grows stronger when it is rooted in mutual trust.
- Fair competition makes us stronger.
- Information must be gathered in a legal manner.

#### Trust with Society

- We are only borrowing the environment from our future children.
- It is our utmost pleasure to share our profits with the society from which we earned them.
- Only when we respect others can we win others' respect.

### Ethical Management Education for Different Levels of Employees



### Diagnosis of Ethical Management and Audit of Practice

Based on the status of each of the themes of LOTTE's Code of Conduct, the company assesses the company's ethical management level and improves the supplements. In 2019, LOTTE E&C has received 96 points in ethical management level, which has been continuously improving since 94 points from first diagnosis in 2015.

Additionally, we have operated 'Ethical Management Day' every month, which we observe every month, with characteristics of the business of each unit taken into consideration.

The Ethical Management Department analyzes the results and takes steps to improve vulnerabilities. We also run a weekly program aimed to put the goal of ethical management into practice, encouraging employees to take part voluntarily. We annually present rewards to well-performing employees and units.

### 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.

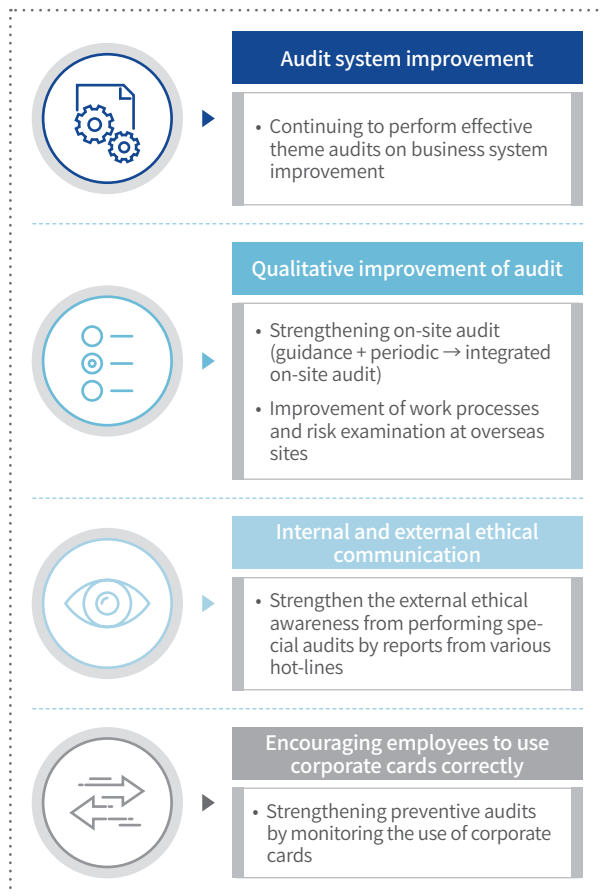
In principle, all matters received will be responded within 10 days, and the whistleblower's anonymity will be guaranteed and fair investigation will prevent any groundless slander. We also print the website address of our cyber ombudsman on employees' business cards to encourage them to take part in 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.

### 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.

In addition, we invite ethical management instructors to introduce LOTTE E&C's ethical management policy to employees of partner companies and to spread measures for ethical win-win growth.



Ethics Education for our Partner Companies

### 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

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.



62  
63

### Strengthening the Compliance System

#### Laying the Basis of Compliance

LOTTE E&C enacted the compliance control standards and the Charter of Compliance Management in 2017, established the Compliance Team in 2018, and put efforts to comply with the social regulations and promises as a corporate citizen by supplementing internal regulations.

#### Introduction of Compliance Program

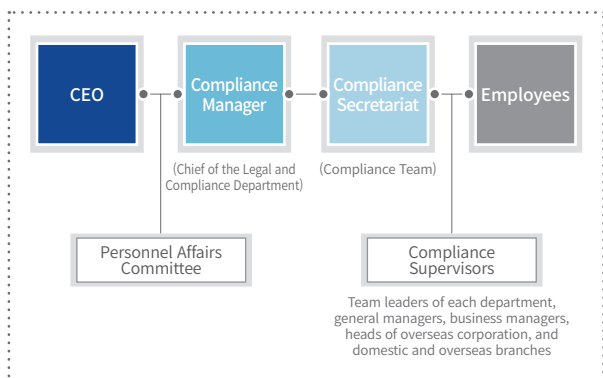
In September of 2018, we announced the introduction of the compliance program at the Declaration of Compliance Ceremony, and posted the CEO's message on the implementation of the compliance program on the compliance introduction website.

LOTTE E&C is striving to establish a compliance culture and erect compliance management.



### 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.



### 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.



## 2018 Key Performance

Launch of an Organization dedicated to Compliance



Compliance Team

Distribute Compliance Regulations, and Subcontracting Guidelines



Number of Employees\* Who Have Received Compliance Education



**3,546**  
employees

\* Daily workers included

Started the Operation of Compliance Channel



### 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 under the Improper Solicitation Act, and new employees are trained to enhance awareness of compliance. We raise employee awareness of compliance and provide training by job and position to prevent risks related to law violations. In 2018, a total of 3,546 employees, including all of LOTTE E&C's employees, including daily workers at construction sites and sales offices, took part in the online lecture to learn about the Improper Solicitation Act.



| Division             | Contents of education   | Educatees                | Type of education | Carried out in |
|----------------------|---|--------------------------|-------------------|----------------|
| Periodic education   | The Improper Solicitation and Graft Act   | All employees            | Online            | Aug. 2018      |
|                      | Compliance in general   | New recruits             | Face-to-face      | Feb./Jul. 2018 |
| Occasional education | The Improper Solicitation and Graft Act   | Management team managers | Face-to-face      | Apr. 2018      |
|                      | The Monopoly Regulation and Fair Trade Act, The Fair Transactions in Subcontracting Act | Project managers         | Face-to-face      | May. 2018      |
|                      |   | All employees            | Online            | Jun./Jul. 2018 |
|                      | Construction work team leaders  | Face-to-face             | Jul. 2018         |                |

### Future Plans

We plan to check the risks from violations of related laws such as subcontracting, fair trade and human resources, and improve our work procedures & systems, and distribute work manuals and checklists so that employees can identify and manage the risks of violations in advance.

In addition, the compliance secretariat will conduct regular inspections on two or three sites every month to reinforce risk prevention and compliance with the subcontracting sector. Furthermore, we plan to conduct compliance training four times a year and regular training by job and position.

# 03

## Creating a Safety-First Corporate Culture

### Importance of the Issue

Workplace safety is one of the prioritized values of 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.



64  
65

### 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.

#### Operation of the Safety and Health Management System

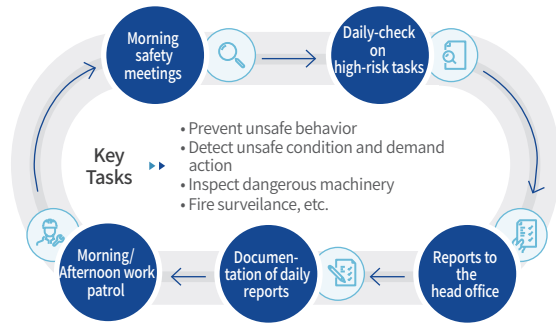
LOTTE E&C has acquired KOSHA18001 and ISO45001, the safety and health management system certification, and operates the risk assessment system to manage risk factors. In addition, we introduced the 'Safety Support Group System managed by the Head Office'<sup>1)</sup> to establish a system for identifying and improving risk factors for construction sites. 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', formed with executives and employees, opens a meeting to set and operate work safety inspection system. As a result of these efforts, LOTTE E&C's death ratio was 0.69 in 2018, far below the average of the construction industry, which is 1.65.

### The Current Death Ratio per 10,000 Workers (2018)



### Operation of the Safety Support Group System managed by the Head Office

We operate a safety support group directly managed by the head office to establish a rapid support system for high-risk sites and sites that require major safety management.



### Industrial Safety and Health Committee

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.

1) A unit composed of safety experts who are dispatched to major construction sites to identify risk factors in time and improve them.



## 2018 Key Performance

### Industrial Accident Rate



**0.43** %

### Number of Site Safety Inspections



**1,199**  
times

### Total Number of Employees Attending Safety Education



**3,309**  
attendees

\* Employees of partner companies included



## Proactive Safety and Health Management Activities

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.

### Strengthening the Risk Evaluation System

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 On-site Safety Management System

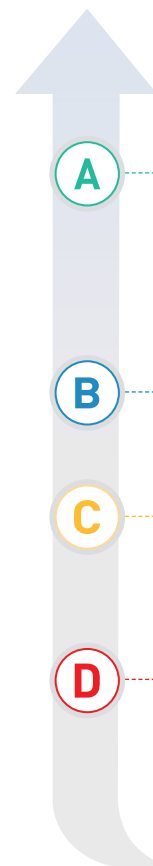
We prevent safety accidents by strengthening safety inspections on high-risk work sites. In 2018, we strengthened safety inspections on high-risk construction equipment such as tower cranes and lifts, compared to the previous year, and established a smooth cooperation system between the R&D center and each business division. In addition, during vulnerable time such as ice melting season and active work period, we are striving to prevent large-scale disasters through intensive site safety management and inspection from headquarter.

### 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



**A**

#### 90 points or higher

- Exemption of regular safety inspection
- Award the Certificate of Excellence (for sites within the top 5% of the first and second evaluations)

**B**

#### 80 ~ 89 points

- Periodic and occasional safety checks

**C**

#### 70 ~ 79 points

- Monthly safety checks and guidance from head office and 3<sup>rd</sup> party specialized organizations until reaching the upper level

**D**

#### Below 70 points

- Monthly safety inspection by headquarter and 3<sup>rd</sup> party specialized organizations

\* However, if there is no development for more than 3 months, request to replace the safety and health officer

### 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.



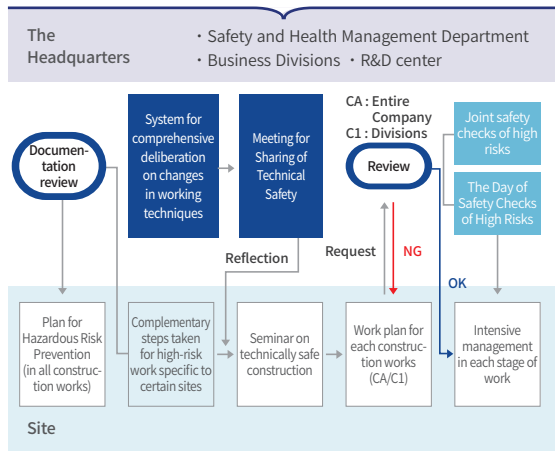
66  
67

### Establishing the Safety Management System for High-Risk Tasks

Through collaboration with relevant departments, we are building a safety management system for each construction phase and reinforcing our ability to prevent serious accidents. In 2018, we held a 'High Risk Safety Inspection Day' in 36 sites to check high-risk work and implement safety measures at each stage. In addition, we have strengthened the safety checks on the risk factors of the vulnerable period through 54 joint inspections with the R&D center and construction management department.

#### Key Management Procedure

| Before construction  | Within 60 days of ground-breaking   | Initiation of construction works   | Implementation of work  |
|--|---|--|---|
| <ul style="list-style-type: none"> <li>Technical review in the planning stage</li> </ul> | <ul style="list-style-type: none"> <li>Selection and monitoring of high-risk tasks</li> </ul> | <ul style="list-style-type: none"> <li>Technical review in the implementation stage</li> <li>Safety measures for each stage of work</li> </ul> | <ul style="list-style-type: none"> <li>Online monitoring system</li> <li>Poor performance → suspension of work</li> </ul> |



### Strengthening the Equipment Safety Management Activities

We are reinforcing the personnel dedicated to the safety and health of our headquarters and designating equipment experts for each base site in each region to reinforce the management of seven high-risk equipment, such as tower cranes and navigators. In addition, we operate a high-risk equipment daily monitoring system.

We also manage the tower crane installation and disassembly teams to place skilled professionals. Since 2018, the head office equipment manager and autonomous surveillance team have been assigned to install, dismantle and climb tower cranes to prevent accidents. Furthermore, we have produced equipment inspection videos for five major equipments, such as excavators, to strengthen the equipment inspection capabilities on site.

### 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 Site Workers

We have appointed a health manager to each site, whose contracted work amount is set at a given level (80 billion won) under the Industrial Health and Safety Act, and provide coaching to health managers with less than three years of experience.

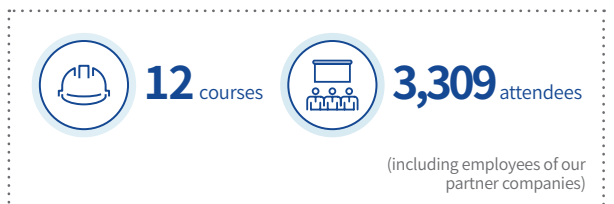
We also check whether adequate ventilation is provided at workplaces, whether the working environment is good, and whether harmful gases are detected. In 2018, we provided sites with a unified warning sign for 78 harmful chemicals including epoxy, along with revised guidelines on the prevention of cases of suffocation in winter.

### Enhancing Safety Education

We hold safety management educational sessions designed to raise employees' awareness of safety issues. The sessions are carried out in the form of discussions and practical exercises with the focus on exploring risk factors and building the participants' ability to cope with danger. In 2018, we provided customized educational sessions delivered by in-house lecturers with the aim of enhancing site safety managers' ability to prevent high-risk safety incidents.

In 2019, we are holding safety educational sessions for engineers and safety-related employees, based on online education contents developed by us, with the focus on five subjects including equipment-related safety management.

### Status of Employees Attending Safety Education (2018)





## Establishing a Safety-Oriented Culture

### Announcement of a Culture of Making Safety an Integral of our Daily Lives

We announced our commitment to expand the culture of making safety an integral part of our daily lives at the Management Strategy Meeting 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 2019, the session was held under the title 'I Respect U', displaying the top management's firm commitment to spread a corporate culture based on mutual respect and safety.



Ceremony for Announcing our Commitment to the Safety Culture

### 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.

### Implementation of 'Safety Communication Day'

In 2016 we established the 'Safety Communication Day' to invigorate safety-related communication between the Headquarters and our sites. Directors and team leaders of the Headquarters pay a visit to sites on the day to provide support and listen to their opinions and complaints. In 2018, we dealt with 52 recommendations made by sites through the sessions held on the Day of Safety Communication.



## Awarded the Best Case Presentation of Safety Management

At the 51<sup>st</sup> annual session for presenting best practice cases of safety management sponsored by the Ministry of Employment and Labor (MOEL) and the Korea Occupational Health and Safety Agency (KOSHA) held during the 'Week for Emphasizing the Importance of Industrial Health and Safety', we won the Grand Prize in the categories of serious disaster prevention and health management, and the Gold Prize in the category of safety management. This achievement was a direct result of the Headquarters' provision of continuous support in education and PR and its invigoration of the movement for spreading the safety culture. We will continue to promote the movement and make the safety culture our unique brand.



## The 'I Respect U' Campaign on Safety Culture

Since 2018 we have been conducting a campaign aimed to spread a culture of safety unique to the Company and at making safety an integral part of our daily lives. Starting in January 2018, employees are required to recite the safety slogan at the daily morning meeting to foster a culture of voluntary participation in safety-related efforts. Since September 2018, we have engaged in a safety culture campaign titled 'I Respect U' which aims to spread a culture of mutual respect and keep sites clean and tidy.



# 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 our environmental impact by designing eco-friendly residential products, developing new technologies that create environmental value, procuring eco-friendly construction materials, and strictly managing environmental risks at our construction sites, etc.

68  
69

### 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 Environmental Management System (ISO14001 Certified)

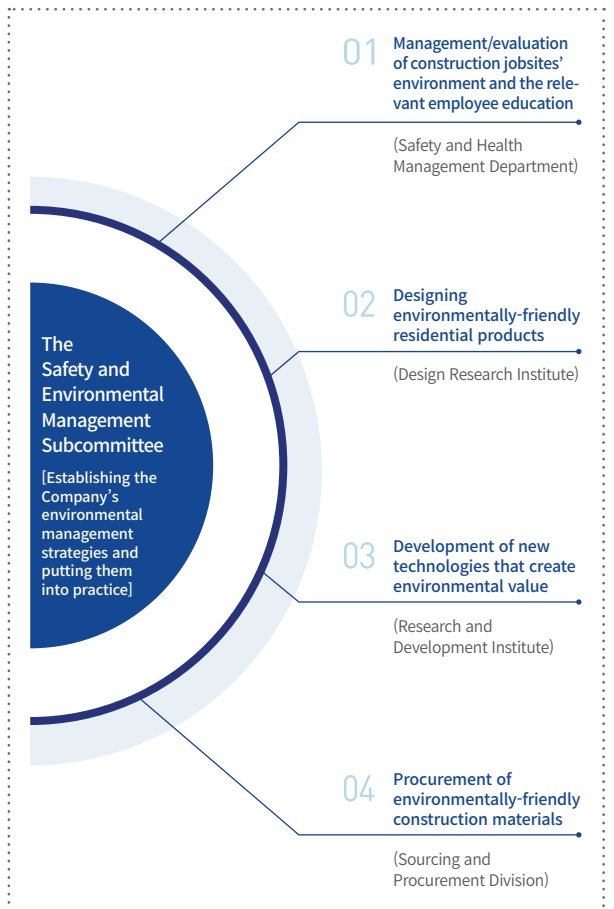
We have continued improving our basis for promoting environmental management under the ISO14001 certification awarded to us in 1996. In 2017, we duly took steps to comply with the revised requirement of the certification.

### 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





## 2018 Key Performance

### GHG Emissions



Accomplished Target Reduction Rate (5.29%)

**48,698** tCO<sub>2</sub>eq

\* 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 **53.69** million



### Status of Major Projects that Have Earned the Green Building Certification

| Division       | Projects                                   | Certification grade  | Date of certification |
|----------------|--|--|-----------------------|
| Housing Works  | Dongdaemun LOTTE Castle Noblesse           | Evaluated as 'Great' in the main Green Building Certification            | Jun. 22, 2018         |
|                | Mokdong LOTTE Castle Maestro               | Evaluated as 'Great' in the main Green Building Certification            | Jun. 29, 2018         |
|                | LOTTE Castle Classia                       | Evaluated as 'Excellent' in the preliminary Green Building Certification | Oct. 2, 2018          |
|                | Gojan LOTTE Castle Gold Park               | Evaluated as 'Great' in the main Green Building Certification            | Oct. 5, 2018          |
|                | Geumcheon LOTTE Castle Gold Park III       | Evaluated as 'Excellent' in the main Green Building Certification        | Oct. 25, 2018         |
|                | Heukseok New Town LOTTE Castle Edu Foret   | Evaluated as 'Great' in the main Green Building Certification            | Nov. 29, 2018         |
|                | Gileum New Town LOTTE Castle Golden Hills  | Evaluated as 'Great' in the main Green Building Certification            | Jan. 29, 2019         |
|                | Gyeonghuigung 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          |
| Building Works | LOTTE World Mall                           | Evaluated as 'Excellent' in the main Green Building Certification        | Nov. 26, 2015         |
|                | LOTTE World Tower                          | Evaluated as 'Excellent' in the main Green Building Certification        | Nov. 21, 2016         |
|                | Hotel LOTTE L7 Gangnam                     | Evaluated as 'Excellent' in the main Green Building Certification        | Jan. 19, 2018         |
|                | Hotel LOTTE L7 Hongdae                     | Evaluated as 'Excellent' in the main Green Building Certification        | Mar. 23, 2018         |

### Status of Holders of the LEED AP Certification

Status of holders of  
the LEED AP certification



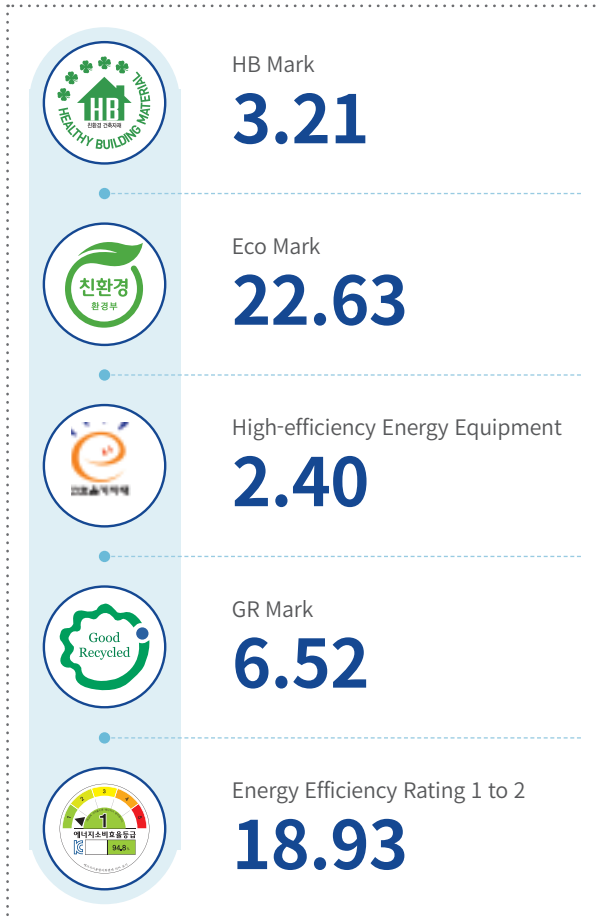
as of 2018

**31** 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 (2018) [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 with-

in/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.

### Performing Environmental Inspection on Sites

We conduct periodic (annual · quarterly · monthly) environmental inspections of sites. We present awards to excellent sites and provide special education for under-performing ones.

In 2018, we inspected a total of 89 sites in this way in a bid to raise our employees' understanding of the importance of environmental management.

### 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 such as exemplary cases, cases that need to be improved, and cases introduced by the mass media on the in-house intranet for site employees to see. In 2019, we began to hold environmental management-related educational sessions for site employees in charge once a year.

### Won the Prizes at the Construction Environment Management Contest

In 2018, our sites were awarded prizes by the Minister of Environment and the President of the Korea Environment Corporation at the 14<sup>th</sup> Construction Environment Management Contest.



### Site-Centered GHG & Energy Management

We require each site to set itself a target for energy saving and to abstain from unnecessary energy use. In 2018, we carried out activities aimed at reducing our greenhouse gas emissions and energy use through the installation of automatic lighting controllers and the replacement of existing lighting with highly-efficient LED lights, particularly at large-sized sites, which account for more than 90% of our greenhouse gas emissions.

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

We distributed in-house guidance to assist sites' efforts to comply with the Special Act on the Reduction and Management of Fine Dust, which took effect in February 2019. Upon issuance of the order to take emergency dust reduction steps, we sent a text message to the relevant sites urging them to comply with the order. In March 2019, we, together with eleven other major construction companies, signed an agreement with the Ministry of Environment to voluntarily deal with the problem of the high concentration of fine dust.

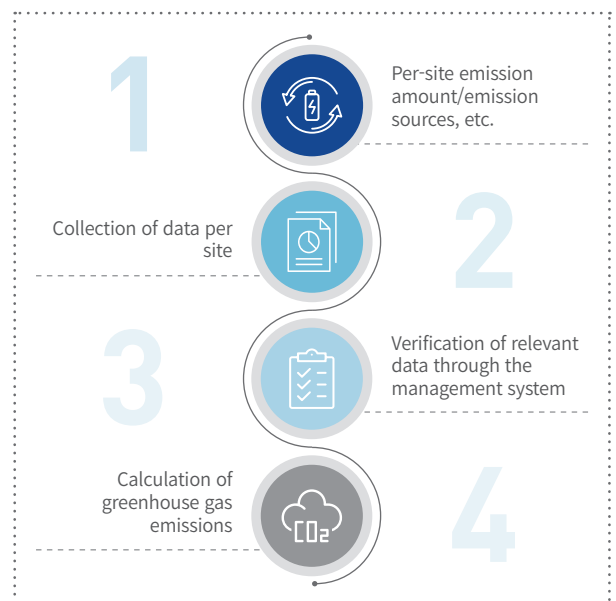


### Responses to Climate Change

#### System for Climate Change Responses

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

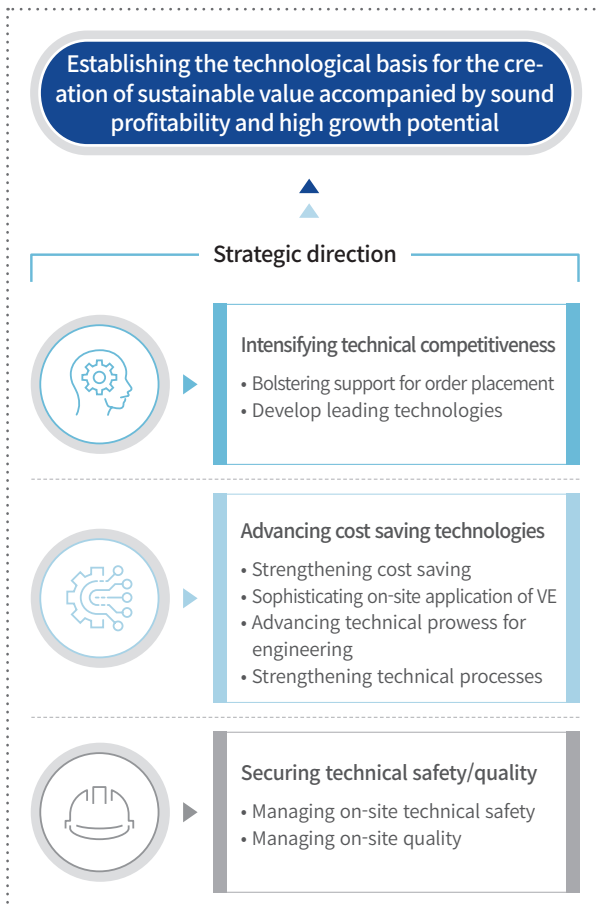
72  
73

### 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 2018, 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 (2002 – 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.

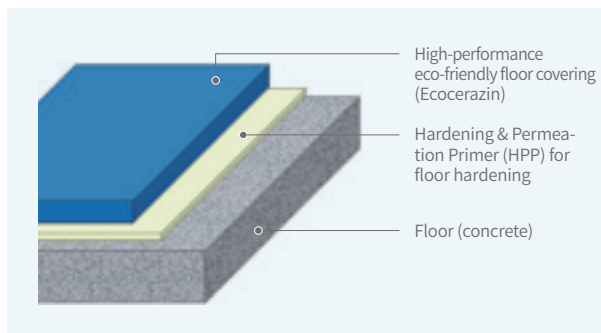
### System for R&D Strategies



### Technologies to Improve Customer Values

#### Eco-friendly Floor Covering

We have come a long way in improving the indoor air quality of buildings by minimizing the use of volatile organic chemicals and harmful chemicals such as formaldehyde in our floor finishing materials. The quality of the floor finishing materials we use in the construction of buildings does not deteriorate even when exposed to acids or moisture. They can also be used in spaces where food is cooked. We have won two patents, one for a green technology and another for a new construction technology based on an eco-friendly technology we have developed. In 2017, we won the Environmental Product Declaration (EPD)<sup>1)</sup> for our highly-functional, eco-friendly flooring materials.



1) Korea Environmental Industry and Technology Institute's Environmental Product Declaration (EPD) C-2017-I-001



## 2018 Key Performance

R&D Expenditure



USD  
**21.98**  
million

Revenue-R&D ratio

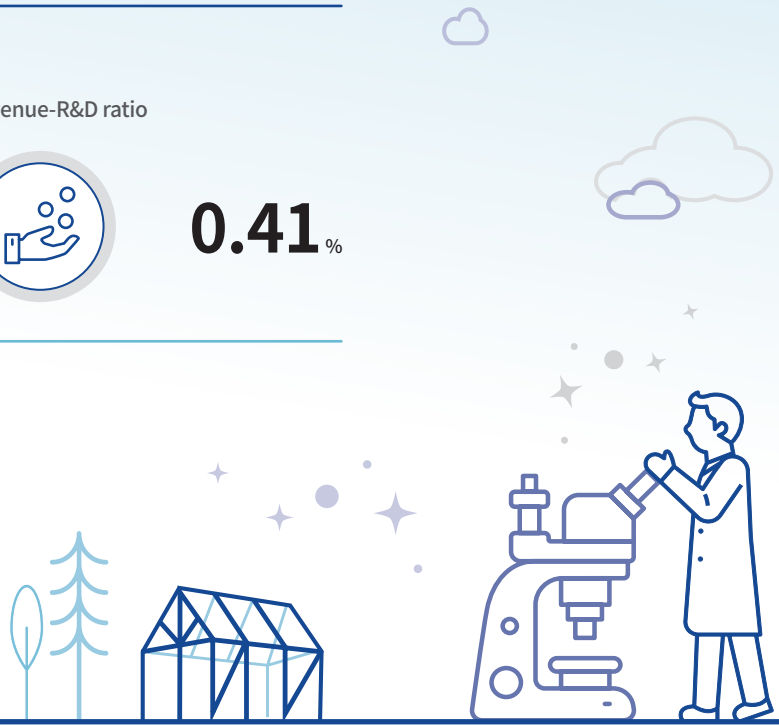


**0.41**%

Number of Patents Acquired

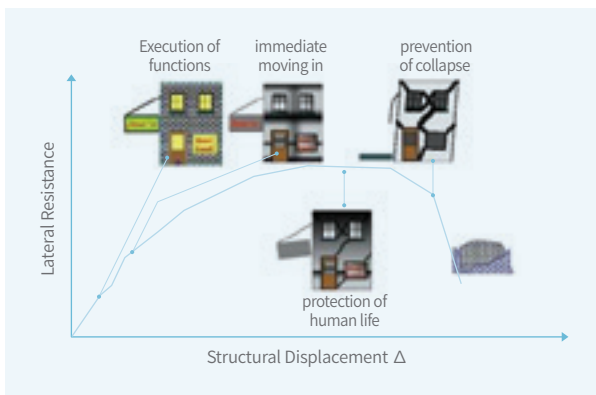


**12** cases



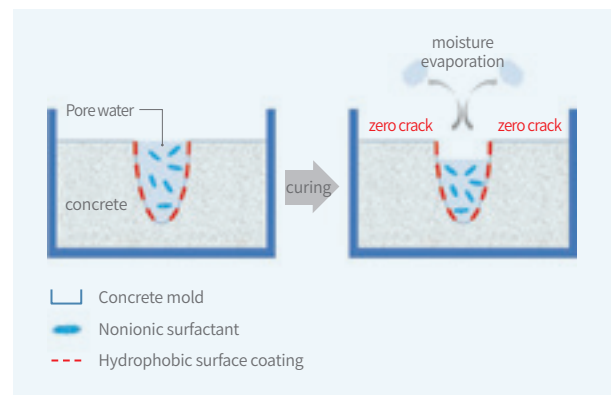
### Apartment Performance-based Seismic Design Technology ●●

We established an earthquake-resistant design process for our standard apartment LOTTE Castle in cooperation with the Earthquake Engineering Society of Korea and performed a mock simulation with a three-dimensional model of a building made by us. We intend to secure safety against earthquakes by applying our performance-based earthquake-resistant design to workplaces.



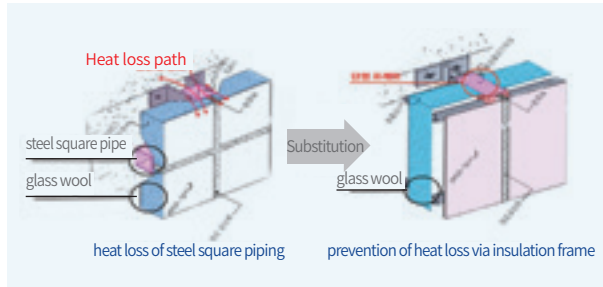
### Advanced Crack Reduction Concrete ●●

We have developed an advanced high-performance admixture that can reduce dry shrinkage by more than 160% compared to conventional concrete, and have applied it to conventional concrete to create our advanced crack reduction concrete. This product can lower maintenance costs by constraining cracks, and minimizes cracking when applied to large-scale floor concrete structures that are vulnerable to plastic and dry shrinkage cracks.



**The Fire Proofed Combustible Outer Insulation System** ●●

This is a fire proofed outer insulation construction technology comprising an insulation frame with a thermal bridge blocking function and an inorganic insulator. It reduces heat loss and the thermal bridge phenomenon generated by the use of square piping in the construction of curtain wall exterior materials, and guarantees fire and structural stability at the same time. In 2019, we are in process to acquire the New construction technology certification through a field demonstration.



**Technologies to Lead the Future Market**

**Load Distribution Technique in the Foundation for Remodeling (Preloading and Connection System) <sup>1)</sup>** ●●

LOTTE E&C developed a load distribution technology for the existing foundation through the preloading and connection system because of a higher demand to retrofit the existing structures as vertical extension remodeling for structures are allowed for and seismic retrofit has been highly performed. We can acquire an optimized and stable design by utilizing micro-piles which excel in load supporting capabilities while easing the load distribution rate for additional loading to the existing foundation. We have verified the technology by conducting a large-scale field test on an actual load and a field application and are planning to commercialize.



**Double-Deck Tunnels in Urban Areas** ●●

Due to the emergence of double-deck tunnels as a new alternative to solve ground traffic in the capital, we have completed the development of reinforcement materials and registration of patents to secure the stability of special areas of the double-deck tunnels such as underground branches, outflows, and adjacent tunnels. We evaluated the applicability of the site through the test construction and completed the comparative analysis of constructability and economic feasibility. In addition, we have produced prototypes that improve the safety of reinforcement connections.



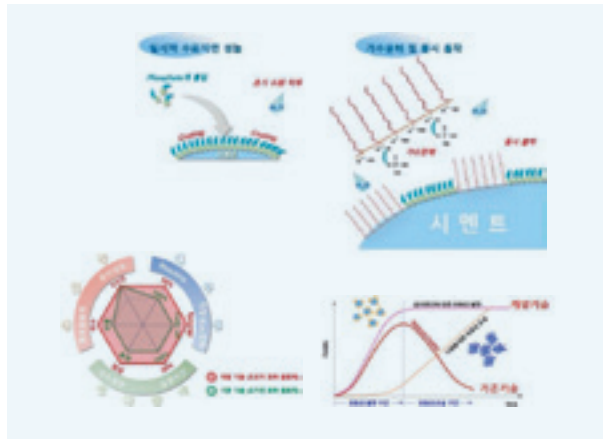
**Technique for Long-Span Bridges** ●●

We completed the construction of 'Dongi Bridge (Yeoncheon-gun, Gyeonggi-do)', Korea's first long-standing tablet-composite cable-stayed bridge, and accumulated experience in cable shape management and construction. Based on this experience, we completed the construction of the Sandaldo Bridge in Geoje, Gyeongsangnam-do.



**Concrete for Extremely Hot Weather** ●●

In the past, concrete curing retardants were used at extremely hot sites, but we developed superheated concrete technology due to problems of deterioration in construction efficiency and quality. The admixture that maximizes the retention performance of concrete is developed to enable smooth operation even in extreme conditions and to minimize the delay of condensation to prevent the loss of strength. This technology has been registered 2 domestic patents, 1 patent in Vietnam and 1 patent in Indonesia.



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

74  
75



**Real-time PC Management System (RPMS<sup>1)</sup>**



We developed the integrated construction management platform to improve the competitiveness and efficiency of precast concrete throughout the design, production, and construction stages. The platform incorporates 5D-BIM, which adds process management and cost control functions to the 3D drawing function using integrated information on the structure to enable the user to easily identify process status by visualizing the progress of each separate process. The cost analysis helps the user to understand and simulate the total construction cost and thus enables rational management of the input budget.



**Slope Displacement Measurement Technology using Drones**



We are currently developing a drone-based measurement technology to improve the efficiency of road slope surveying, which costs tens of million dollars nationwide each year. Conventional measurement technology has limit due to vegetation from slope characteristics, making it impossible to measure displacement with conventional images and general sensors. LOTTE E&C is developing drone automatic operation technology to improve site safety by measuring slopes using L-Band SAR<sup>2)</sup> sensors that are not affected by vegetation.



**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 the anaerobic digestion process. Since 2018 we have been participating in the 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 new and renewable energy and recycling resources.

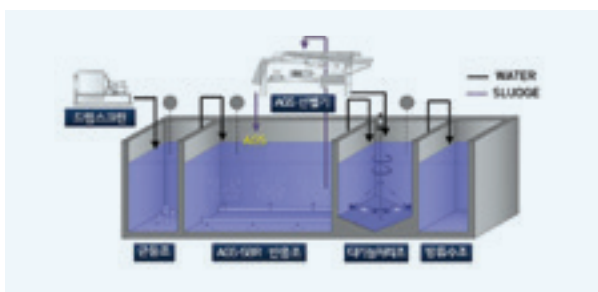


**Technologies to Create the Environmental Values**

**AGS (Aerobic Granular Sludge) Wastewater Treatment Technique**



The advanced sewage treatment method using AGS, a high-density complex microbial agent, is the latest sewage treatment technology that can reduce construction and operating costs by more than 30%. LOTTE E&C obtained new environmental technology certification and technology verification from the Ministry of Environment in 2018 for 'Continuous Batch Sewage Advanced Treatment Technology to Maintain Aerobic Granule Sludge Concentration with Belt Type Filter'. In addition, we are striving for commercialization through 3,000 tons/day sized demonstration research.



**Scattering Dust Reduction System on Construction Site**



The scattering dust generated at construction sites without an outlet deteriorates the working environment and causes many complaints. In order to solve the limitations of existing measurement that depend on manpower, and to prevent safety accidents, we have developed and running tests on spray blower for reducing dust dust that is immediately applicable to construction sites.



1) Real-time Precast Concrete Management System  
 2) All-weather observation image radar using L spectrum (Synthetic Aperture Radar)

# 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 criterias 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.

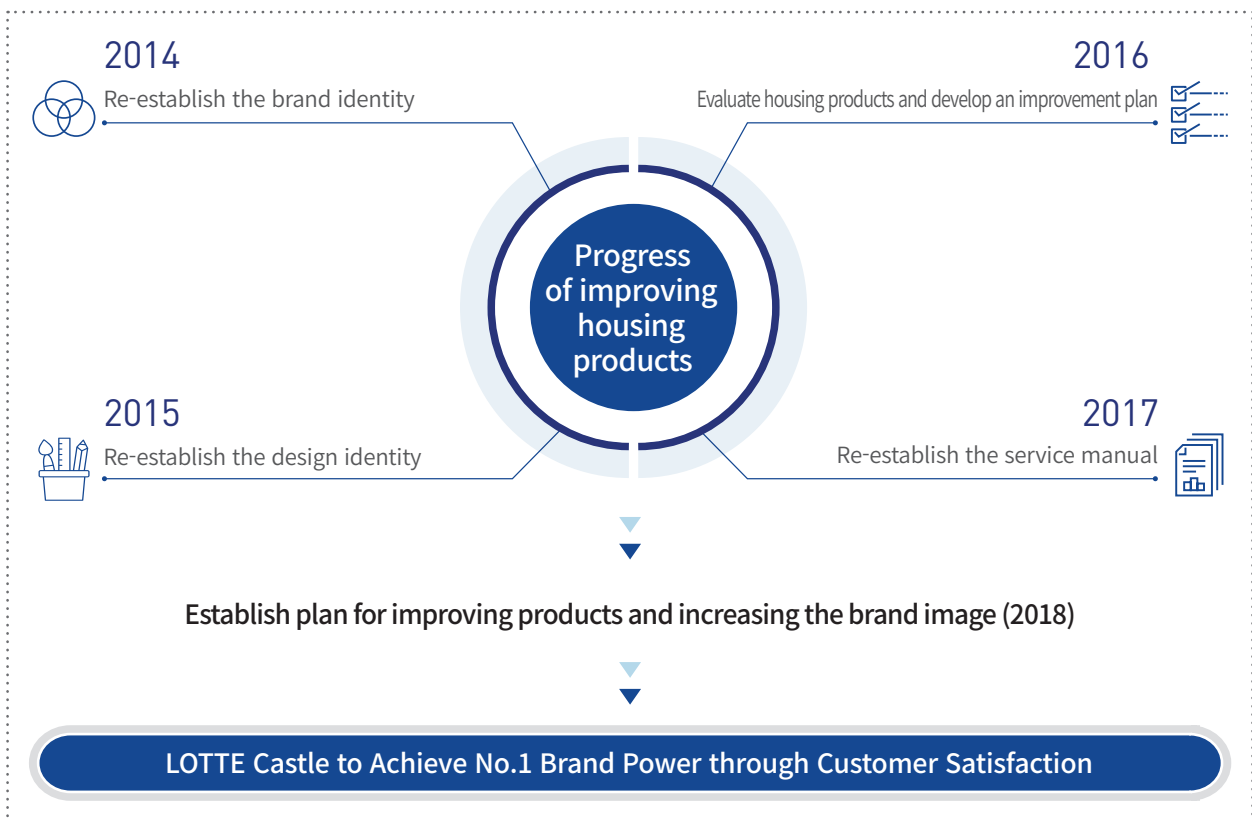
76

77

### 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. To this end, we have visited housing complexes and households to assess the current levels of our housing products, and then establishes and implements improvement approaches.

#### Progress of Improving Housing Products





## 2018 Key Performances

Quality Inspections Completed



**101** times

Satisfaction Rate of the Castle Clean Service



**98.4** %

Quality Innovation Academy

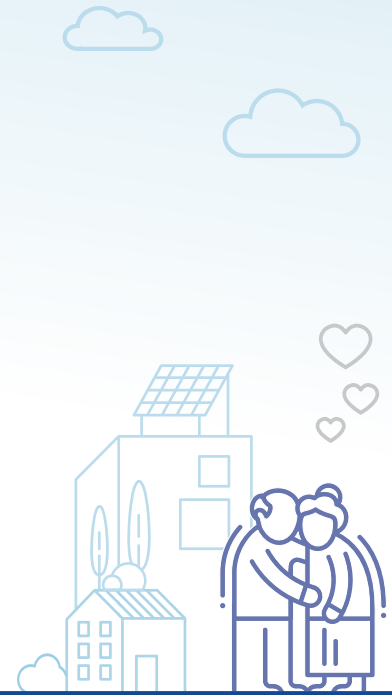


**16** sessions

Housing Product Design Concept



**AZIT2.0**  
Announced



## 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 our employees in technical jobs, holding 16 training sessions in 2018.

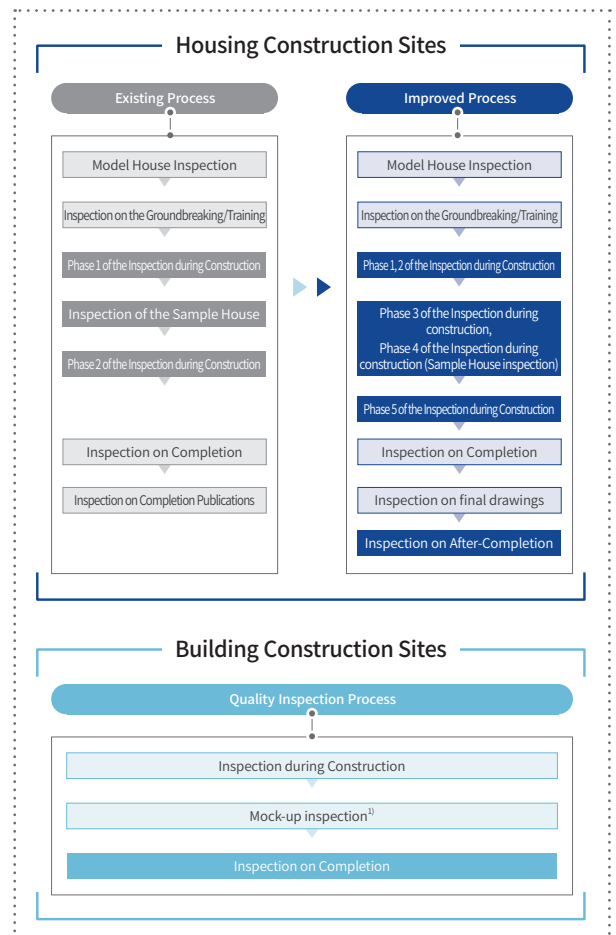
We are improving the professional skills of our employees by offering training courses on major cases of defects occurring at construction sites, design standards and regulations, and construction quality improvement approaches.

### 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.

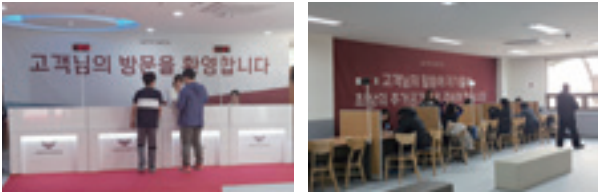
## Quality Inspection Process



1) Mock-up inspection: actual model-used inspection

### ‘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.

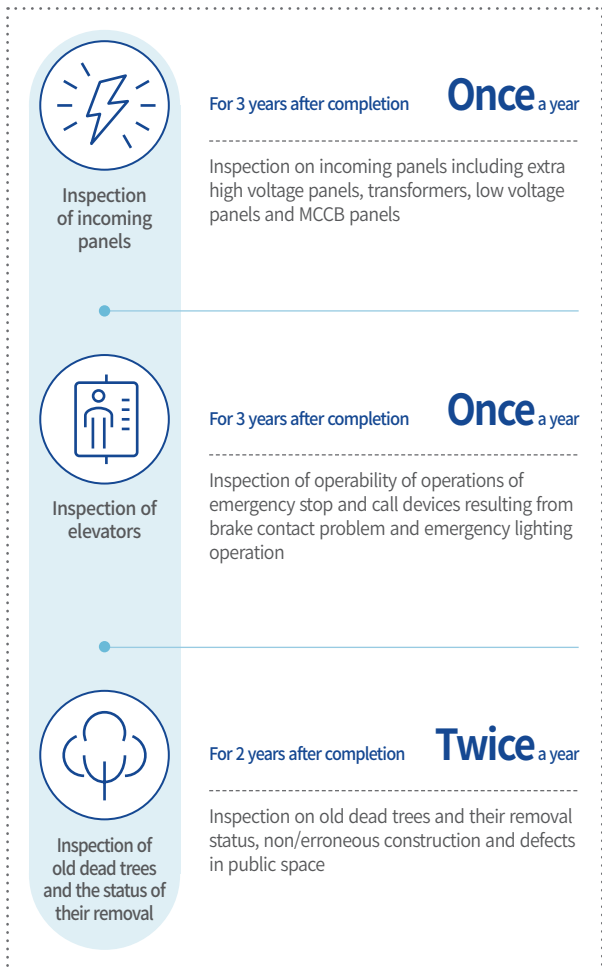


Inspection prior to Moving in

### 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.

78  
79



### 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.

#### Renewal of the Mobile Application for Smart Home

The ‘Castle Smart Home’ application launched in May 2018 is an updated version of the original apartment household management application that was developed for the purpose of supplying digital home services to LOTTE Castle residents. Based on advanced information communication technologies such as the IoT, the application provides convenient services like sharing information among apartment blocks, monitoring and controlling light/gas/water/heating and cooling equipment in individual households, and checking up on deliveries/visitors/vehicles, as well as security functions like facial recognition, and LOTTE Group subsidiary-linked services.

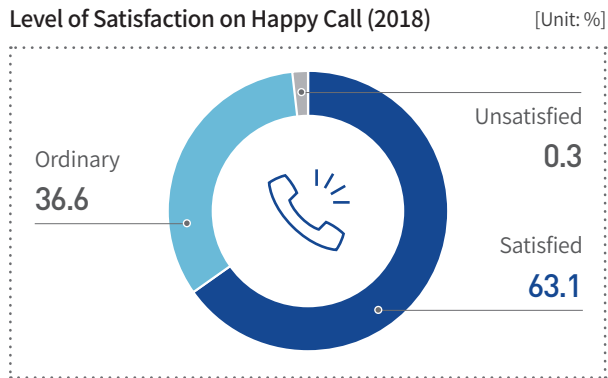


‘Castle Smart Home’, an upgraded version of ‘Castle Manager’, the existing household control application



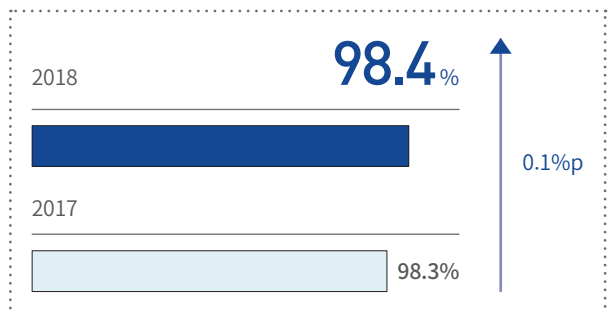
### Happy Call Service

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 feed back 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.



### Castle Clean Service

LOTTE E&C provides the Castle Clean Service as a free extra service to tenants of LOTTE Castle according to the length of their occupancy. The service consists of highly-demanded functions such as kitchen, bathroom, and bed cleaning as well as cleaning windows from the outside. The Castle Clean Service satisfaction survey conducted in 2018 showed a customer satisfaction rate of 98.4%. We are continuously improving the organization of the service and the service items, and we are increasing customer satisfaction and enhancing the brand image through steady promotions.



### Social Contributions of Residents Participation

LOTTE E&C runs a sharing campaign with ‘The Beautiful Store Foundation’ where residents can directly participate in making donations. The funds collected through the campaign are used to help under privileged people in Korea and overseas, as well as to fund public benefit activities, education for children and youth, and the recycling of resources. Besides this campaign, we organize numerous events like t-shirt and eco-bag making, a photo zone, magician performances, and a cafeteria. These events serve as venues for communication between the residents.



The Donation Campaign called as ‘Building a Beautiful Apartment Community’

### Customer Information Protection System

LOTTE E&C is reinforcing the company’s information protection system to protect its information assets from virus attacks and hacking and to manage its customers’ personal information safely so as to minimize damages caused by information leaks. LOTTE E&C complies with the statutory regulations related to personal information protection and operates a company-wide organization dedicated to information protection.

LOTTE E&C holds the Information Protection Day each month to raise employees’ awareness of security issues, and each team conducts a self-inspection on the day. Every quarter, our information protection-related departments conduct joint inspections to assess the state of information protection across the entire company, focusing on the following four security areas: PC, paper documents, office environment, and personal information.

Meanwhile, we provide regular training on a yearly basis for all employees to be responsible on for handling personal information. Training and supervision are provided together so that consignees, including real estate brokers, can securely handle personal information while performing their tasks. In 2016, we installed professional solutions to counter ransoms, hence establishing a measure for protecting important data from damages and recovering them. In 2017, we obtained the ‘Information Security Management System (ISMS) certification<sup>1)</sup> issued by KISA (Korea Internet & Security Agency) for the process and internal system for handling the personal information of LOTTE Castle apartment purchasers.

The company is now building the most advanced information protection system in the industry. In May 2019, it introduced the ‘Integrated Information Monitoring System’ with which signs of security risks can be detected in advance. This system enables the company to respond to hacking attempts from abroad as well within the country and thwart attempts to steal personal information.

1) Information Security Management System (ISMS) Certification: a certification system validated by a national certifier on the adequacy of the overall system of setup, management and operation in order for a company to protect its critical information assets from various threats

## Customer-Oriented Design

LOTTE E&C is continuously improving the designs of its housing products by reflecting customer needs and trends in the designs. In 2019, we announced 'AZIT 2.0', which is an upgraded version of the design concept 'AZIT' we debuted in 2017. Through 'AZIT 2.0', we proposed 'safe and

### Security System (Black Box Intercom, etc.)



Black box door phone



Network switch  
(emergency call button in red)

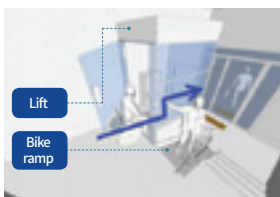
To improve the safety of homes, LOTTE E&C has developed and adopted a black box Intercom that records (both audio and video) suspicious individuals loitering near the door. This Intercom detects movement with motion detectors even when a person doesn't press the doorbell. We are also in the process of adopting a home network system that allows interactive communication with the security room in an emergency situation.

### Lobby Air Shower System



LOTTE E&C has introduced an air shower system that removes the outdoor fine dust that accumulates on one's clothing before one enters the house. The purpose of the system is to improve the indoor air quality of homes. This lobby-installed air system maintains indoor air quality in a clean and healthy state by dusting off the fine dust present on clothing and sucking in airborne dust particles. In addition, homeowners can use the vacuum cleaner installed inside the shoe closet to remove larger particles stuck on clothing and shoes.

### Barrier-free Entry System (Nebbiolo Lobby)



We are installing a lift instead of a conventional wheelchair ramp at the above-ground entrance to provide further convenience to customers who are physically immobilized. In leftover spaces, we have improved the landscaping to provide unique value to customers.







#### • Utility Room (Perfect Utility)



‘Perfect Utility’ means a multi-functional room that is a perfect assistant for house-keeping. ‘Perfect Utility’ allows residents to collect all their laundry, wash it manually or by machine, and dry and iron it all in one space. ‘Perfect Utility’ enables the separate disposal of recyclable wastes and optimizes the movement of people in the apartment.

#### • Shelf-type Bathtub Faucets



There is a space above each bathtub faucet where residents can store shower articles, with the spout hidden below the faucets. Because the spout does not protrude, residents can avoid banging into the spout while using the bathtub. In addition, an adjustment lever is installed above each faucet for ease of use.

#### • Dream Bathroom



Dream Bathroom is a specialized bathroom product that is larger than the shared bathroom and couple bathroom, and offers more space as well as an expanded storage facility. Also, to ensure customer safety, safety handles are installed in the shower booth, bathtub, and toilet bowl.

#### • Castle Home Garden



Castle Home Garden is a product for customers who want to expand their balconies and make their living room more spacious while also allowing them to grow plants on the balcony. The flooring is tiled for ease of cleaning and maintenance. LED lighting and 3-section sliding doors are installed to improve the sensation of openness and convenience.

# 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 supply 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.

82

83

### 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 Partner Company Selection and Evaluation

LOTTE E&C has formed business relationships with 2,447 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.

#### Evaluation of Partner Companies

LOTTE E&C conducts regular evaluations of partner companies' technological/quality level, safety/environmental management, ethical management, and management performance with the objective of improving the competitiveness of the supply chain. Also, after taking into account our trading history, trading amounts, and regular evaluation results, we classify a partner company as an excellent, major or general partner before managing them. Companies selected as excellent partners are given priority to participate in bids and other incentives. Beginning in 2018, the range of benefits available to excellent companies was expanded; and they are now paid in cash for their subcontracting proceeds and receive a greater reduction in the amount of performance bonds.



## 2018 Key Performance

### Total Financial Support



USD  
**28.92**  
million

### Shared Growth Indicator



Rated  
**Excellence**

\* Details of Total Financial Support

- Direct Support

Shared growth loans totaling USD 4.27 million  
(5 partner companies received 6-month interest-free loans).  
The best partner companies were given awards of USD 0.08 million (free support for the 3 best partner companies).

- Mixed Support

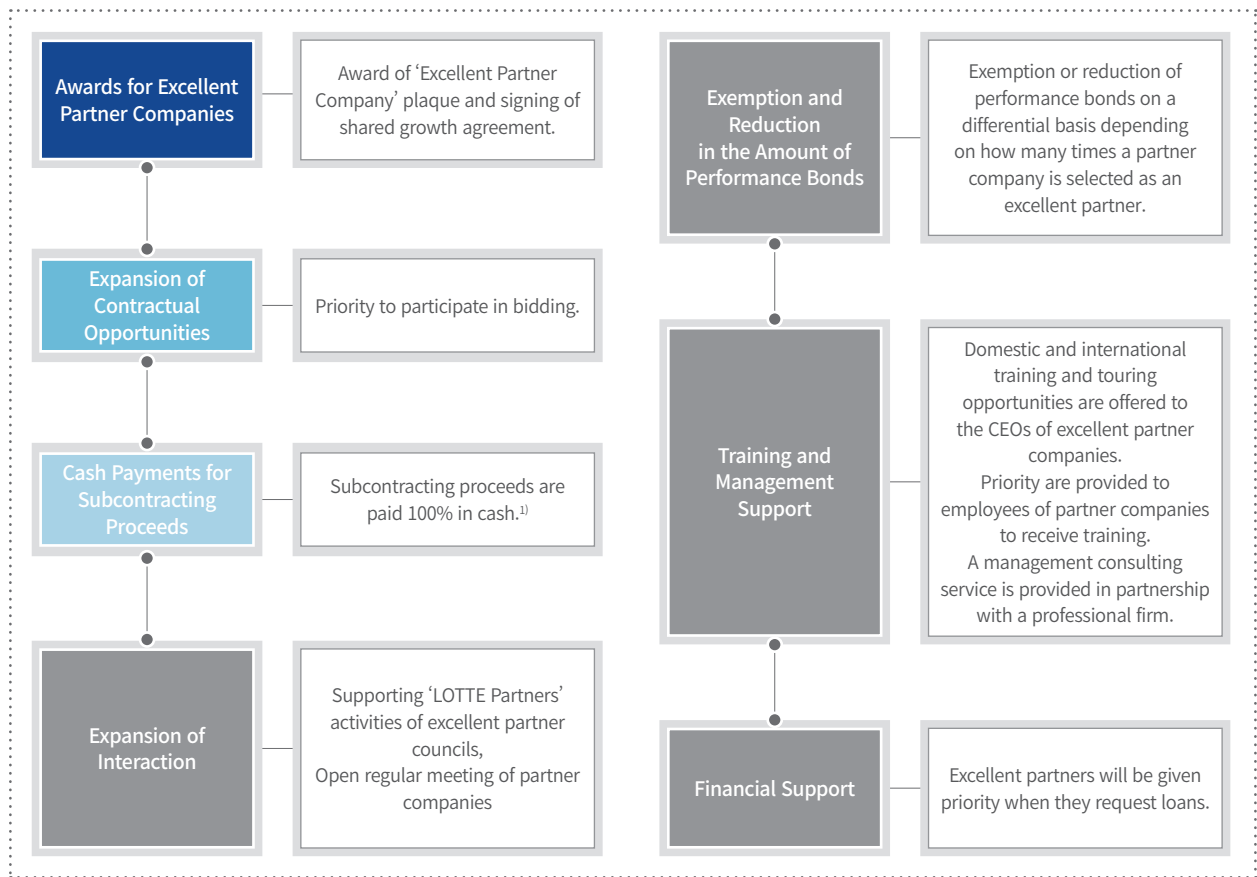
Invested USD 24.54 million in a shared growth fund managed by IBK (a matching grant with IBK totaling USD 49.08 million to be used as loans for partner companies).

- Special Support

USD 0.03 million funding for the Corporate Partnership Foundation (educational investment).



## Incentives for Excellent Partner Companies



1) 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.



Award ceremony for excellent partner companies and signing ceremony for shared growth agreement

84  
85

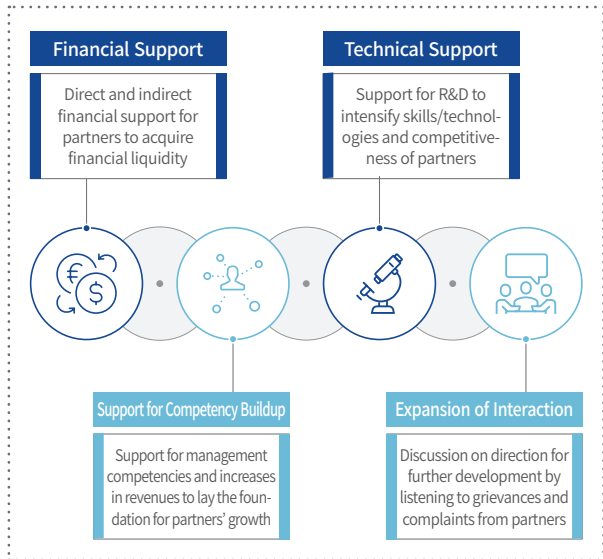
### Signing of Agreement on Fair Trade and Shared Growth

LOTTE E&C signed its first fair trade and shared growth agreement in 2011. Since then, we have signed the agreement every year with multiple companies, and as of today some 350 companies are our partners in fair trade and shared growth. Signatories can receive such benefits as a higher cash payment limit, accelerated due payment dates, and educational opportunities. In recognition of its efforts in shared growth, LOTTE E&C was given a top rating for the shared growth indicator in 2018, and was awarded the Minister of SMEs and Startups Award at the 2018 Construction Cooperation Promotional Awards.

### 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)

One of LOTTE E&C'S win-win partnership programs for SME partners is called the 'Shared Growth Fund', a program that automatically exempts the interest on loans to SME partners by using the interest from a fund deposited at IBK by LOTTE E&C. This program offers an automatic preferential loan interest rate of 1.1~1.3%, which is the highest level in the construction industry; and, as of December 2018, 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 offline 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 from a professional consulting firm. In 2018, we funded management consulting on financial structure, production, quality control, management, strategy, marketing, brand, and technology development for two partners.

### 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 Subcontract Transactions Act

We launched an educational program on the Fair Subcontract Transactions Act for our employees for the purposes of contributing to the growth of a fair trade culture and minimizing subcontract disputes. In 2018, we invited external subcontracting law experts to give lectures on subcontracting law to employees at our domestic sites (1,824).



#### 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.

86

87

### 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 that could exploit our strengths as a construction business, such as repairing the homes of less privileged people and social welfare facilities, and providing refrigerators and gas ranges to them. In 2018, we further expanded the scope of these activities.

#### Briquette of Love-Sharing Activity

In 2011 we began taking part in activities to supply coal briquettes to less privileged households each winter. In 2018, more than 130 members of the Charlotte Voluntary Service Corps, including the President, participated in delivering coal briquettes to 60 households in Nowon-gu, Seoul and Dong-gu, Busan as part of the program to supply a total of 60,000 coal briquettes.

#### Community Services at the Seoul National Cemetery (volunteering of employees and their families)

Each year, we carry out voluntary service activities at the Seoul National Cemetery on the occasion of Memorial Day (June 6) and Armed Forces Day (Oct.1) with the participation of employees' families. In 2018, more than 160 employees and 40 members of their families participated in these activities in May and September ahead of Memorial Day and Armed Forces Day.

## 2018 Key Performance

Social Contribution Expenditure



USD  
**4.27** million

No. of Charlotte Voluntary Service Corps



**202** teams

Service Time of Charlotte Voluntary Service Teams



**7,648** hours

Total Number of Employees that Took Part in Social Contribution Activities



**1,801** employees



## 2018 Key Social Contribution Activities

|  |   |
|--|---|
|  | <b>Love House of Dreams and Hopes</b><br>- Seoul<br>5 local welfare centers for children      1 facility for the handicapped        |
|  | - Busan<br>1 facility for the handicapped      1 public toilet<br>2 less privileged households                                      |
|  | <b>Briquette of Love-Sharing Activity</b><br>- Coal briquettes      - Instant noodles<br>supply of <b>60,000</b> <b>2,000</b> boxes |
|  | <b>Community Services at the Seoul National Cemetery</b><br>Participation of <b>40</b> families and <b>160</b> individuals          |

## Charlotte Voluntary Service Corps

We operate the Charlotte Voluntary Service Corps with the participation of staff at the Company's headquarters and workplaces both in and outside the country. The Corps' major activities are focused on improving the residential environment of less privileged households and repairing welfare facilities, providing meals at welfare centers, cleaning them, helping the less privileged to attend more cultural activities such as exhibitions and performances, and cleaning local streams and parks.

## Future Plans

We are gradually expanding our social contribution activities. In 2019, we renewed our social contribution-related in-house intranet in a bid to encourage more employees to take part in voluntary activities. We plan to expand the scope of support for 'Love House' designed to give hope to less privileged people. We have also introduced a system for obtaining credit points to encourage our employees to take part in the Charlotte Voluntary Service Corps.

## Operating the Matching Grant-based Social Contribution Fund

In 2011, we adopted the system of Matching Grant as a way of raising social contribution funds. Employees volunteer to donate a small part of their monthly pay and the Company also pays the same amount to raise the funds. In 2018, the Company upped its share of the fund to a level equal to three times the amount donated by its employees. At present, 77% of employees take part in the worthy program.



# 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.



88

89

### 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 find the need to change their behavior as a leader constructively by reflecting on their own leadership style and capability. We strive to adopt leadership styles suited to real situations and are pursuing the balanced growth of the entire organization and its leaders. In 2018, a total of 235 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 to develop their capabilities further and build up their human resources network. In 2018, three directors attended the CEO courses arranged by us. A total of 38 directors have attended them so far.

### EMBA

We run an EMBA program for directors to train them 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 managing 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 2018, eleven directors attended the program, with a total of 138 high-ranking directors attending the course to date.

### 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.

## 2018 Key Performance

No. of Employees who Attended Educational Programs



**3,218**  
employees

No. of Hours of Education per Employee



**113** hours

Total Expenditure on Education



USD  
**3.14** million



## 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.

### 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.

## Educational Results in 2018



BIM<sup>1)</sup> Manager Education

Accumulated trainees **79**  
(cf. 50 in 2018)

1) Building Information Modeling



Job-related Education on Housing Works

No. of trainees **581**



Education on Contractual Management for Overseas Construction Projects

Accumulated trainees **125**



Global School

Accumulated trainees **136**

### Adoption of OPIc (Oral Proficiency Interview – Computer)

We have adopted the OPIc, a certified means of evaluating foreign language proficiency in a bid to objectify our employees' ability to speak foreign languages and secure more employees fit for our global operations. In 2018, we had all our employees sit the OPIc test. Volunteers are allowed to sit for the test once a year. We also included the OPIc test result in the screening for promotion to encourage employees to improve their foreign language skills. The OPIc test result is expected to enable us to build a pool of human resources capable of carrying out works in foreign countries.

### Foreign Language Courses for Employees dispatched to Overseas Projects

We have adopted a short-term language course designed to secure more employees capable of speaking English or the local language of a country in which the company has won a project. The course will go a long way towards helping the relevant employees to carry out their business more efficiently in foreign countries. Composed of grammar, listening, and speaking, the course focuses on how to express oneself in specific situations. Those who complete the course display a good result in objective tests of foreign language proficiency. They are given priority in selection for dispatch to our overseas sites. In 2018, 18 employees attended the course.

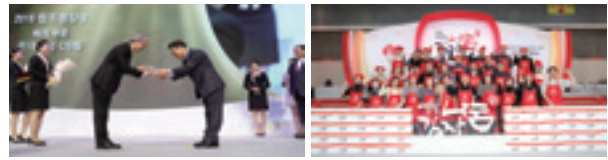


### Publication of a Beginner-Level Indonesian Language Text for Construction Managers

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 employee 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 activity competitions, employee self-esteem programs, the LOTTE Family Unity Contest, and the Charlotte Volunteer Corps.



### 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.

### Employee-Management Communication

We regularly hold 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. We have built solid relationships of mutual trust and harmony between employee and management. We also operate an online complaints handling system, guaranteeing complainers' anonymity, making it mandatory to provide feedback within 10 days of the submittal of a complaint. In 2018, we received and solved a total of seven complaints related to working conditions/environment and the 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 the level of employee's engagement in our business activity from time to time to check the sustainability of the business growth engine. We also check the level of employees' understanding of the business's core value through an organizational diagnosis. In 2018, the score of the engagement diagnosis stood at 83/100. The diagnosis enables us to look at the sectors that leave something to be desired. We are also striving to continue improving the overall working environment, such as the organization's vision/strategy, leadership, career development opportunities, and welfare.



## W-Leadership Program

We provide a channel aimed to ensure our commitment to the development of talented female employees and enhancing the pride and self-esteem of our female managers.

In 2018, we held lecture sessions for 20 female managers, inviting outside lecturers in an effort to debate the importance and role of talented female employees.

We plan to continue holding such sessions in connection with the need to develop female managers and team leaders.



## 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'<sup>1)</sup> 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.

1) 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 and the like and 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 respective requirements, such as a health diagnosis for their spouse, a group insurance or point accumulation-type welfare card.

We pay our employees' health diagnosis and insurance/medical expenses, while providing housing loans and paying tuition fees for their children regardless of their number, and congratulatory/condolatory money 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%<sup>2)</sup> of ordinary salary, when 4~6 month, its 50% of ordinary salary. Starting in 2019, congratulatory money raised to 2 million won for every child after the first born.

2) Government subsidies included.

92  
93



**Provision of support for a more leisurely life**

- The system of refreshing leave.
- Day of Family Love (twice a week).
- Day for Club Activities.
- Provision of a gift on birthday/wedding anniversaries.
- Provision of support for family trips for employees working abroad.



**Provision of housing/livelihood stabilization support fund**

- Loan for housing expenses.
- Payment of tuition fees for employees' children.
- Payment of part of expenses for congratulatory/condolatory occasions.



**Statutory welfare**

- Provision of the four leading (health, national, employment, and industrial disaster) insurances to employees.



**Childbirth/maternity protection-related support**

- Post-childbirth parental leave.
- Provision of cash support at the time of childbirth.
- Allowing couples having difficulty getting pregnant to retire temporarily; making it obligatory for male employees to spend maternity leave on the occasion of their spouse giving birth.
- Expansion of maternity protection facilities.



**Selective welfare**

- Provision of welfare benefits to individual employees, using the welfare card.



**Others**

- Provision of workers' compensation insurance to employees both in and out of the country; provision of family insurance to the families of employees working abroad.
- Presentation of rewards to long-term employees.
- Provision of retirement preparation programs (via an online homepage and a dedicated office).
- Extension of employees' retirement age; adoption of the salary peak system.
- Adoption of the flextime system.
- Adoption of a casual Friday dress policy.

**Work-Life Balance**

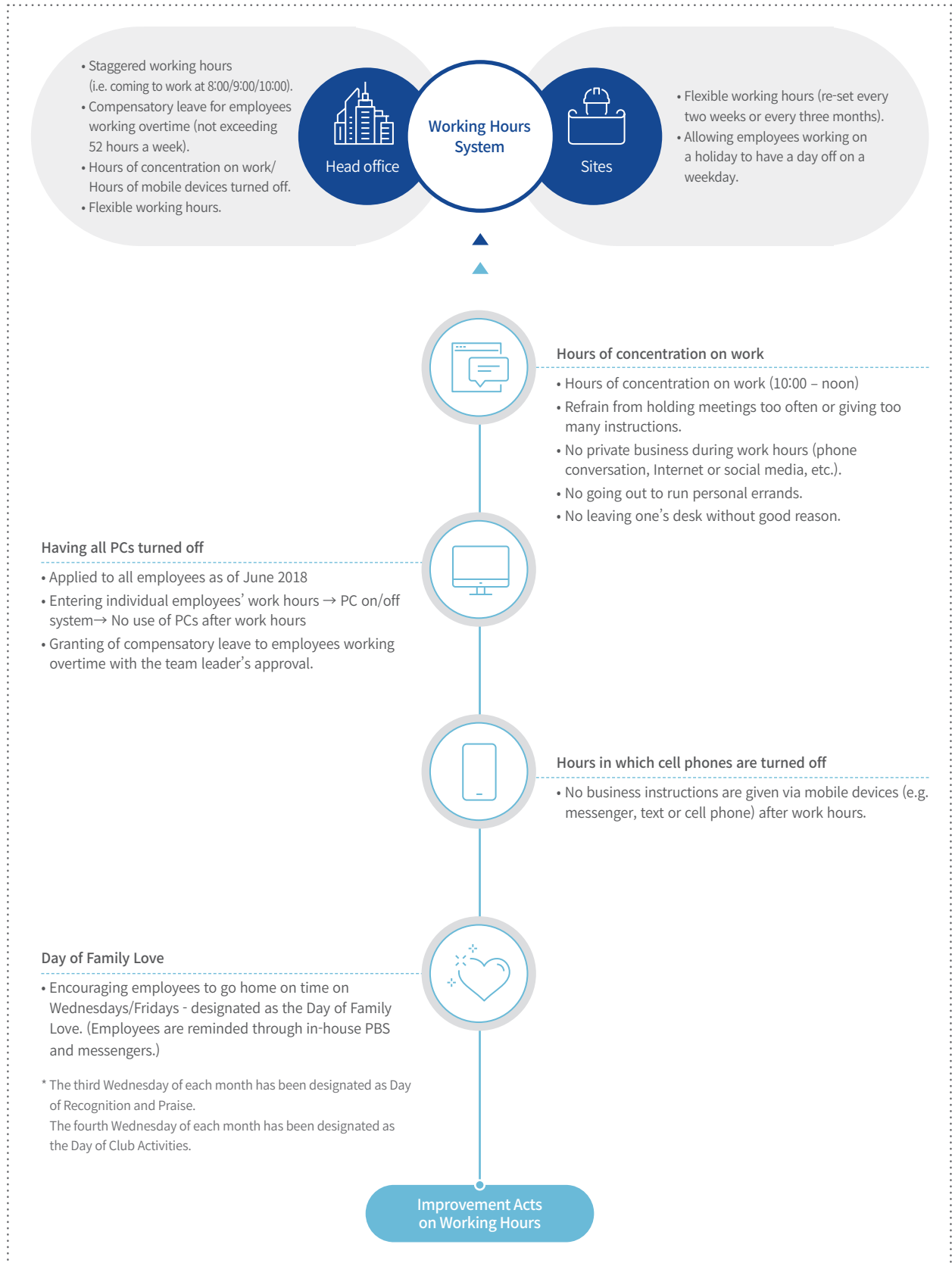
We provide a one night/two day family-friendly program to improve employees' work-life balance. Employees and their families taking part in the program are encouraged to deepen their family love and enhance their understanding of the Company.

As a result of our continued operation of the parental leave system and a daycare center in the workplace, we won the Family-Friendliness Certification in 2015. 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 work hours stipulated in the revised Labor Standards Act by operating the work hours management system and diverse types of work.





# Originality

---

94

95

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

96 Key Performance in Sustainability Management





# Key Performance in Sustainability Management

## Economic Performance (based on separate financial statements)

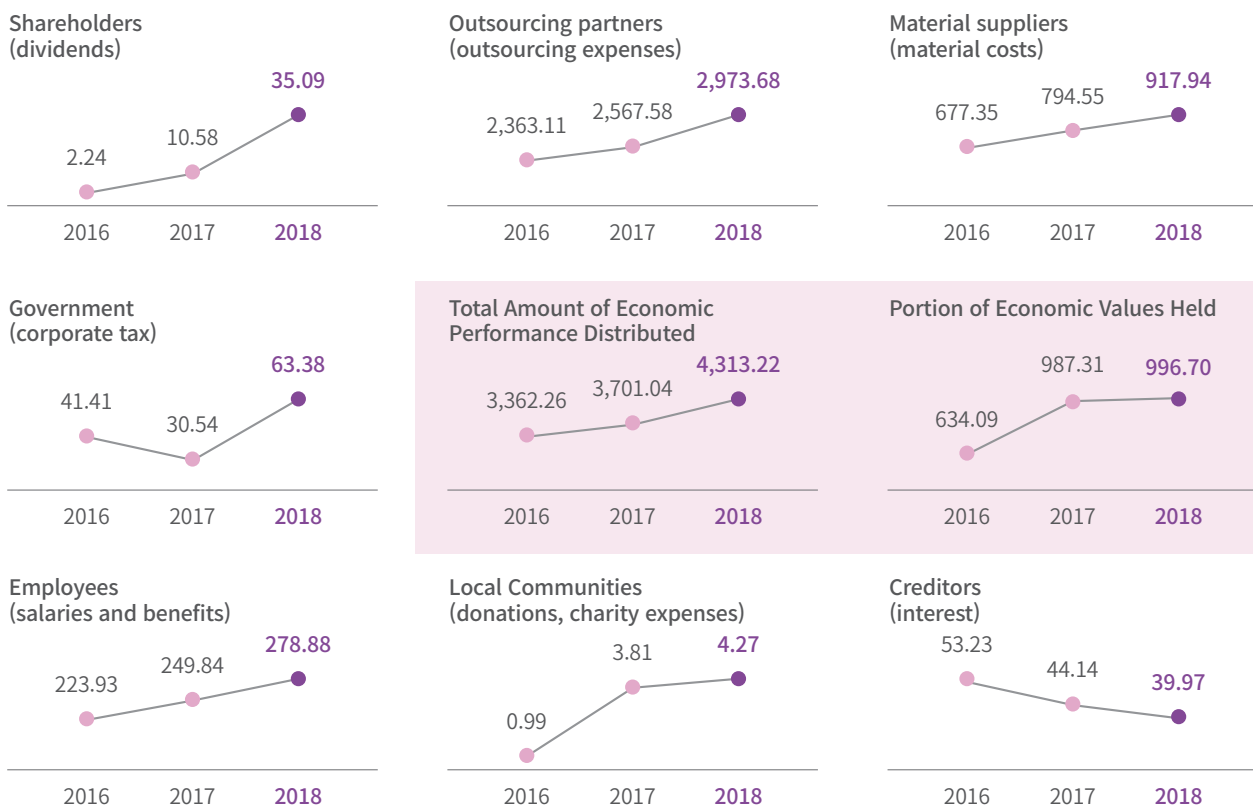
### Creation of Direct Economic Values

| Type   |   | Unit        | 2016     | 2017     | 2018     |
|--|---|-------------|----------|----------|----------|
| Orders   | Total orders                              | USD Million | 6,098.32 | 7,220.21 | 6,626.74 |
|  | - Domestic                                | USD Million | 5,908.66 | 6,715.27 | 6,043.44 |
|  | - Overseas                                | USD Million | 189.66   | 504.93   | 583.30   |
| Revenue  |   | USD Million | 3,996.35 | 4,688.35 | 5,309.92 |
| Gross profit   |   | USD Million | 405.95   | 545.62   | 662.10   |
| Operating income   |   | USD Million | 216.68   | 331.10   | 438.34   |
| Profit before income tax   |   | USD Million | 51.31    | 59.97    | 218.00   |
| Net income   |   | USD Million | 9.90     | 29.43    | 154.62   |
| Total assets   |   | USD Million | 4,240.02 | 4,242.07 | 4,552.74 |
| Liabilities  |   | USD Million | 2,526.80 | 2,467.22 | 2,662.59 |
| Capital  |   | USD Million | 1,713.22 | 1,774.86 | 1,890.15 |
| R&D investment   | Technology development service expenses   | USD Million | 14.29    | 17.13    | 17.47    |
|  | Exclusive technology development expenses | USD Million | 3.31     | 4.04     | 4.52     |
| 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        | 2016  | 2017   | 2018   |
|-----------------------|------------------------------|-------------|-------|--------|--------|
| Pension Fund          | Amount of assets accumulated | USD Million | 97.21 | 133.65 | 160.36 |
| Number of subscribers |                              | persons     | 2,986 | 3,091  | 3,154  |

## Evaluation of Corruption Risks at Workplaces

| Type                 |  | Unit       | 2016 | 2017 | 2018 |
|----------------------|--|------------|------|------|------|
| Number of workplaces |  | Workplaces | 226  | 255  | 185  |
| Ratio of workplaces  |  | %          | 100  | 100  | 100  |

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

| Type  |  | Unit  | 2016 | 2017 | 2018 |
|---|--|-------|------|------|------|
| Number of corruption cases                          |  | cases | 0    | 1    | 1    |
| Number of legal actions taken for unfair trade acts |  | cases | 1    | 1    | 0    |

## Notification and Training on Anti-Corruption Policies and Procedure

| Type   |                                     | Unit                          | 2016      | 2017  | 2018  |       |
|--|-------------------------------------|-------------------------------|-----------|-------|-------|-------|
| Number and ratio of governance body members who were notified and trained on anti-corruption policies and procedures | Number of members                   | persons                       | 7         | 8     | 8     |       |
|  | Ratio of members                    | %                             | 87.5      | 88.9  | 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   | 2,200 | 2,286 | 2,360 |
|  |                                     | Contractual employees         | persons   | 807   | 904   | 858   |
|  | Ratio of workers by type            | Regular employees             | %         | 100   | 100   | 100   |
|  |                                     | Contractual employees         | %         | 100   | 100   | 100   |
|  | Number of workers by country        | South Korea                   | persons   | 2,820 | 3,026 | 3,089 |
|  |                                     | Indonesia                     | persons   | 27    | 34    | 38    |
| Vietnam  |                                     | persons                       | 22        | 25    | 33    |       |
| Japan  |                                     | persons                       | 2         | 5     | 2     |       |
| China  |                                     | persons                       | 67        | 51    | 36    |       |
| Pakistan   |                                     | persons                       | 11        | 12    | 3     |       |
| Russia   |                                     | persons                       | 9         | 2     | 2     |       |
| Malaysia   |                                     | persons                       | 44        | 32    | 5     |       |
| Qatar  |                                     | persons                       | 4         | 2     | 1     |       |
| Cambodia   |                                     | persons                       | 0         | 0     | 9     |       |
| Australia  | persons                             | 1                             | 1         | 0     |       |       |
| Jordan   | persons                             | 0                             | 0         | 0     |       |       |
| India  | persons                             | 0                             | 0         | 0     |       |       |
| 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 | 1,754 | 1,708 | 1,568 |
|  |                                     | Raw material suppliers        | companies | 942   | 894   | 879   |
|  | Total                               | companies                     | 2,696     | 2,602 | 2,447 |       |

\* Impossible to separate the partner companies for each country

## Environmental Performance

### Material Consumption

| Type                                      |                    | Unit           | 2016      | 2017      | 2018      |
|---|--------------------|----------------|-----------|-----------|-----------|
| Non-renewable raw materials               | Ready-mix concrete | m <sup>3</sup> | 2,781,003 | 3,210,702 | 3,025,285 |
|   | Cement             | Ton            | 45,346    | 196,935   | 27,312    |
|   | Aggregate          | m <sup>3</sup> | 314,309   | 141,614   | 80,013    |
|   | Asphalt concrete   | Ton            | 348,961   | 496,845   | 231,764   |
|   | Sand               | m <sup>3</sup> | 43,151    | 17,361    | 29,649    |
|   | Rebar              | Ton            | 419,119   | 478,479   | 457,461   |
|   | Plaster board      | Board          | 1,325,591 | 2,209,102 | 3,210,556 |
| Recyclable raw materials                  | Recycled aggregate | m <sup>3</sup> | 11,834    | 3,754     | 1,328     |
| Ratio of recycled materials used as input | %                  | %              | 3.6       | 2.6       | 1.6       |

\* Includes activities in overseas sites

98

99

### Waste Generation

| Type                    |                                     | Unit     | 2016    | 2017    | 2018    |
|-------------------------|-------------------------------------|----------|---------|---------|---------|
| Amount of waste by type | Waste concrete                      | Ton      | 352,541 | 433,146 | 231,371 |
|                         | Waste asphalt concrete              | Ton      | 16,674  | 17,729  | 23,348  |
|                         | Wood wastes                         | Ton      | 70,408  | 9,396   | 8,875   |
|                         | Waste synthetic resins              | Ton      | 47,306  | 14,996  | 9,717   |
|                         | Waste soil and stones               | Ton      | 45,932  | 28,026  | 97,943  |
|                         | Construction sludge                 | Ton      | 1,853   | 3,150   | 4,885   |
|                         | Roof tile wastes                    | Ton      | 0       | 0       | 0       |
|                         | Tile / Ceramic waste                | Ton      | 461     | 220     | 102     |
|                         | Waste bricks                        | Ton      | 0       | 0       | 0       |
|                         | Waste blocks                        | Ton      | 0       | 0       | 0       |
|                         | Textile wastes                      | Ton      | 1       | 10      | 0       |
|                         | Waste boards                        | Ton      | 1,110   | 1,045   | 2,254   |
|                         | Waste glass                         | Ton      | 15      | 0       | 0       |
|                         | Other wastes                        | Ton      | 6,801   | 2       | 114     |
|                         | Mixed construction waste            | Ton      | 96,822  | 86,256  | 167,179 |
|                         | Amount of waste by treatment method | Reusable | Ton     | 0       | 0       |
| Recyclable              |                                     | Ton      | 560,582 | 543,118 | 527,989 |
| Fertilization           |                                     | Ton      | 0       | 0       | 0       |
| Incineration            |                                     | Ton      | 23,653  | 7,498   | 1,604   |
| Landfill                |                                     | Ton      | 55,689  | 43,360  | 16,196  |
| On-site storage         |                                     | Ton      | 0       | 0       | 0       |
| Others                  |                                     | Ton      | 0       | 0       | 0       |

\* Data from domestic worksites

## Water Consumption

| Type                          | Unit | 2016      | 2017      | 2018      |
|-------------------------------|------|-----------|-----------|-----------|
| Water and sewage consumption  | Ton  | 1,319,761 | 1,242,057 | 1,712,259 |
| Underground water consumption | Ton  | 554,641   | 294,015   | 237,520   |

\* Data from domestic worksites

## Energy Consumption

| Type                       | Unit           | 2016 | 2017   | 2018   |        |
|----------------------------|----------------|------|--------|--------|--------|
| Amount of energy purchased | Steam          | TJ   | 2.00   | 1.99   | 0.46   |
|                            | Electric power | TJ   | 748.00 | 747.00 | 742.00 |
| Amount of fuel consumed    | Brown coal     | TJ   | 63.04  | 81.50  | 61.08  |
|                            | LNG            | TJ   | 22.48  | 37.82  | 42.86  |
|                            | LPG            | TJ   | 0.44   | 0.00   | 0.00   |
|                            | Gasoline       | TJ   | 4.32   | 0.48   | 0.66   |
|                            | Diesel         | TJ   | 31.44  | 21.83  | 18.21  |
|                            | Diesel         | TJ   | 36.48  | 27.41  | 47.19  |
|                            | Total          | TJ   | 158.20 | 169.04 | 170.00 |

\* Data from domestic worksites

## GHG Emissions

| Type                        | Unit               | 2016   | 2017   | 2018   |
|-----------------------------|--------------------|--------|--------|--------|
| Scope 1(Direct emissions)   | tCO <sub>2</sub> e | 12,269 | 13,268 | 12,577 |
| Scope 2(Indirect emissions) | tCO <sub>2</sub> e | 36,474 | 36,338 | 36,124 |

\* Data from domestic worksites



## Social Performance

### Current Status of Employees

| Type                                       | Unit                        | 2016         | 2017         | 2018         |       |       |
|--|-----------------------------|--------------|--------------|--------------|-------|-------|
| Total number of employees                  | persons                     | 3,007        | 3,190        | 3,218        |       |       |
| Number of male employees                   | persons                     | 2,834        | 2,941        | 2,960        |       |       |
| Number of female employees                 | persons                     | 173          | 249          | 258          |       |       |
| Number of regular employees                | Total                       | 2,200        | 2,286        | 2,360        |       |       |
|  | Male                        | 2,095        | 2,166        | 2,222        |       |       |
|  | Female                      | 105          | 120          | 138          |       |       |
| Number of contractual employees            | Total                       | 807          | 904          | 858          |       |       |
|  | Male                        | 739          | 775          | 738          |       |       |
|  | Female                      | 69           | 129          | 120          |       |       |
| Ratio of regular employees                 | Total                       | %            | 73.2         | 71.6         | 73.3  |       |
|  | Male                        | %            | 69.7         | 67.9         | 69.0  |       |
|  | Female                      | %            | 3.5          | 3.7          | 4.2   |       |
| Ratio of contractual employees             | Total                       | %            | 26.8         | 28.3         | 26.6  |       |
|  | Male                        | %            | 24.5         | 24.3         | 22.9  |       |
|  | Female                      | %            | 2.3          | 4            | 3.7   |       |
| Number of employees by age group           | Below 30 years old          | persons      | 400          | 452          | 429   |       |
|  | Between 30 and 50 years old | persons      | 2,316        | 2,402        | 2,401 |       |
|  | Over 50 years old           | persons      | 291          | 336          | 388   |       |
| Number of employees by region              | Total                       | persons      | 2,820        | 3,026        | 3,089 |       |
|  | Indonesia                   | persons      | 27           | 34           | 38    |       |
|  | Vietnam                     | persons      | 22           | 25           | 33    |       |
|  | Japan                       | persons      | 2            | 5            | 2     |       |
|  | China                       | persons      | 67           | 51           | 36    |       |
|  | Pakistan                    | persons      | 11           | 12           | 3     |       |
|  | Russia                      | persons      | 9            | 2            | 2     |       |
|  | Malaysia                    | persons      | 44           | 32           | 5     |       |
|  | Qatar                       | persons      | 4            | 2            | 1     |       |
|  | Cambodia                    | persons      | 0            | 0            | 9     |       |
|  | Australia                   | persons      | 1            | 1            | 0     |       |
|  | Jordan                      | persons      | 0            | 0            | 0     |       |
|  | India                       | persons      | 0            | 0            | 0     |       |
|  | Regular employees           | South Korea  | persons      | 2,037        | 2,144 | 2,235 |
|  |                             | Indonesia    | persons      | 23           | 29    | 37    |
|  |                             | Vietnam      | persons      | 21           | 23    | 32    |
|  |                             | Japan        | persons      | 2            | 5     | 2     |
|  |                             | China        | persons      | 66           | 51    | 36    |
|  |                             | Pakistan     | persons      | 9            | 8     | 3     |
| Russia                                     |                             | persons      | 8            | 2            | 2     |       |
| Malaysia                                   |                             | persons      | 29           | 21           | 5     |       |
| Qatar                                      |                             | persons      | 4            | 2            | 1     |       |
| Cambodia                                   |                             | persons      | 0            | 0            | 7     |       |
| Australia                                  |                             | persons      | 1            | 1            | 0     |       |
| Jordan                                     |                             | persons      | 0            | 0            | 0     |       |
| Contractual employees                      |                             | India        | persons      | 0            | 0     | 0     |
|  | South Korea                 | persons      | 783          | 882          | 854   |       |
|  | Indonesia                   | persons      | 4            | 5            | 1     |       |
|  | Vietnam                     | persons      | 1            | 2            | 1     |       |
|  | Cambodia                    | persons      | 0            | 0            | 2     |       |
|  | China                       | persons      | 1            | 0            | 0     |       |
|  | Pakistan                    | persons      | 2            | 4            | 0     |       |
|  | Russia                      | persons      | 1            | 0            | 0     |       |
|  | Malaysia                    | persons      | 15           | 11           | 0     |       |
|  | Ratio of female employees   | %            | 5.8          | 7.8          | 8.0   |       |
| Ratio of female executives                 | %                           | 1.0          | 1.1          | 1.2          |       |       |
|  |                             | (31 persons) | (34 persons) | (39 persons) |       |       |
| Number of physically handicapped employees | persons                     | 60 (2.0%)    | 63 (2.0%)    | 69 (2.1%)    |       |       |

### Employment Status

| Type   | Unit                              | 2016                        | 2017 | 2018 |    |    |
|--|-----------------------------------|-----------------------------|------|------|----|----|
| Employment status  | Total number of turnovers         | persons                     | 89   | 78   | 66 |    |
|  | Number of male turnovers          |                             | 87   | 66   | 59 |    |
|  | Number of female turnovers        |                             | 2    | 12   | 7  |    |
|  | Number of turn-overs by age group | Below 30 years old          |      | 15   | 20 | 12 |
|  |                                   | Between 30 and 50 years old |      | 56   | 51 | 48 |
|  |                                   | Over 50 years old           |      | 18   | 7  | 6  |
|  | Number of turn-overs by region    | South Korea                 |      | 85   | 78 | 66 |
|  |                                   | Indonesia                   |      | 0    | 0  | 0  |
|  |                                   | Japan                       |      | 4    | 0  | 0  |
|  |                                   | India                       |      | 0    | 0  | 0  |
|  | Jordan                            |                             | 0    | 0    | 0  |    |
| Number of local hires                                      |                                   | 212                         | 146  | 165  |    |    |
| Number of local talents through early priority recruitment |                                   | 33                          | 37   | 36   |    |    |

### Parental Leave

| Type   | Unit   | 2016    | 2017 | 2018 |     |
|--|--------|---------|------|------|-----|
| Total number of employees entitled to parental leave                                   | Total  | persons | 931  | 892  | 825 |
|  | Male   | persons | 906  | 862  | 798 |
|  | Female | persons | 25   | 30   | 27  |
| Total number of employees taking parental leave  | Total  | persons | 9    | 41   | 122 |
|  | Male   | persons | 2    | 32   | 106 |
|  | Female | persons | 7    | 9    | 14  |
| Total number of employees returning to work after parental leave                       | Total  | persons | 7    | 40   | 119 |
|  | Male   | persons | 1    | 31   | 106 |
|  | Female | persons | 6    | 9    | 13  |
| Number of employees still on the payroll 12 months after returning from parental leave | Total  | persons | 0    | 4    | 56  |
|  | Male   | persons | 0    | 4    | 55  |
|  | Female | persons | 7    | 6    | 1   |
| Return rate from parental leave  | %      | 77.8    | 97.6 | 99.2 |     |
| Ratio of employees still on the payroll 12 months after returning from parental leave  | %      | 46.7    | 24.4 | 47.1 |     |

## Education and Training

| Type                          |        | Unit        | 2016  | 2017  | 2018  |
|-------------------------------|--------|-------------|-------|-------|-------|
| Total number of trainees      | Total  | persons     | 3,007 | 3,190 | 3,218 |
|                               | Male   | persons     | 2,834 | 2,941 | 2,960 |
|                               | Female | persons     | 173   | 249   | 258   |
| Training hours per individual | Total  | hours       | 105   | 113   | 113   |
|                               | Male   | hours       | 103   | 111   | 113   |
|                               | Female | hours       | 144   | 136   | 110   |
| Total training expenses       | Total  | USD Million | 2.11  | 2.65  | 3.14  |

## Status of Ethical Management

| Type   |  | Unit    | 2016  | 2017  | 2018  |
|--|--|---------|-------|-------|-------|
| Number of employees participating in ethical management training |  | persons | 3,007 | 3,190 | 3,218 |
| Number of cases of unethical management practice                 |  | cases   | 9     | 15    | 13    |
| Number of cases reported through epeople (ombudsman)             |  | cases   | 404   | 350   | 466   |
| Number of cases improvements and guidance provided after audits  |  | cases   | 65    | 71    | 67    |
| Assess ethical levels  |  | points  | 95    | 95    | 96    |

## Status of Social Contribution Activities

| Type   |  | Unit        | 2016  | 2017  | 2018  |
|--|--|-------------|-------|-------|-------|
| Expenses for social contributions                  |  | USD Million | 0.99  | 3.81  | 4.27  |
| Number of participating employees                  |  | persons     | 1,247 | 1,168 | 1,801 |
| Number of volunteering teams                       |  | teams       | 138   | 169   | 202   |
| Employee participation rate through matching grant |  | %           | 77.0  | 75.4  | 77.0  |

## Partner Companies

| Type  |  | Unit        | 2016  | 2017  | 2018  |
|---|--|-------------|-------|-------|-------|
| Total number of partner companies                 |  | teams       | 2,696 | 2,602 | 2,447 |
| Records of financial support to partner companies |  | USD Million | 27.79 | 28.58 | 28.92 |

## Safety and Health of Employees

| Type   |   | Unit        | 2016  | 2017  | 2018  |
|--|---|-------------|-------|-------|-------|
| Industrial accident rate   |   | %           | 0.26  | 0.23  | 0.43  |
| Number of cases involving a critical accident  |   | cases       | 1     | 2     | 2     |
| Number of injuries or diseases occurring among workers who are under organizational control (employees excluded) | Total   | persons     | 65    | 66    | 108   |
|  | Male  | persons     | 63    | 64    | 104   |
|  | Female  | persons     | 2     | 2     | 4     |
| Number of occupational deaths among workers who are under organizational control (employees excluded)            | Total   | persons     | 1     | 2     | 2     |
|  | Male  | persons     | 1     | 2     | 0     |
|  | Female  | persons     | 0     | 0     | 2     |
| On-site safety inspections   | Number of on-site inspections                 | Inspections | 6     | 7     | 6     |
|  | Total number of inspections                   | inspections | 662   | 923   | 1,199 |
|  | Number of cases with safety problems          | cases       | 15    | 11    | 8     |
| Safety training  | Number of safety training courses             | courses     | 13    | 12    | 12    |
|  | Number of safety training course completers   | persons     | 3,769 | 3,165 | 3,309 |
| Securing of safety managers  | Ratio of safety managers to regular employees | %           | 32.0  | 30.0  | 32.0  |

# Appendix



102

103

- 103 GRI Standards Index
- 106 Third Party's Assurance Statement
- 108 Memberships in Associations / Awards



# GRI Standards Index

| GRI STANDARDS UNIVERSAL STANDARDS (GRI 100) |   |   |       |      |
|---|---|---|-------|------|
| Topic                                       | No.   | Title   | Page  | Note |
| GRI 101: Foundation                         |   |   |       |      |
| GRI 102:<br>Organizational Profile          | 102-1   | Report the name of the organization   | 6     |      |
|   | 102-2   | Activities & primary brands, products & services  | 10-47 |      |
|   | 102-3   | The location of the organization's head office  | 6     |      |
|   | 102-4   | Regions of business   | 6,7   |      |
|   | 102-5   | The nature of ownership and legal form  | 6     |      |
|   | 102-6   | The markets served  | 6     |      |
|   | 102-7   | Scale of the organization   | 6     |      |
|   | 102-8   | Information on employees and workers  | 6     |      |
|   | 102-9   | Supply chain of the organization  | 82-83 |      |
|   | 102-10  | Critical changes in the organization and the supply chain   | 82-83 |      |
|   | 102-11  | The precautionary principle and approach  | 9     |      |
|   | 102-12  | External initiatives  | 54-55 |      |
|   | 102-13  | Membership of associations  | 108   |      |
| GRI 102: Strategy                           | 102-14  | Statement of the chief decision maker   | 4-5   |      |
|   | 102-15  | Major impacts, crises and opportunities   | 52    |      |
| GRI 102:<br>Ethics and integrity            | 102-16  | Values, principles, standards and a code of conduct   | 6     |      |
|   | 102-17  | Guidance on ethics and grievance handling mechanisms  | 91    |      |
| GRI 102: Governance                         | 102-18  | Corporate governance  | 8     |      |
|   | 102-19  | Transfer of the authority   | 8     |      |
|   | 102-20  | Executives' responsibilities for economic, environmental and social topics                              | 8     |      |
|   | 102-21  | Consultation with stakeholders on economic, environmental and social topics                             | 8     |      |
|   | 102-22  | Composition of the top decision-making body and committees under it                                     | 8     |      |
|   | 102-23  | Chairman of the top decision-making body  | 8     |      |
|   | 102-24  | Recommendation and selection of the top decision-making body  | 8     |      |
|   | 102-25  | Conflicts of interests  | 8     |      |
|   | 102-26  | Roles of the top decision-making body in establishing goals, values and strategies                      | 8     |      |
|   | 102-27  | Collective knowledge of the top decision-making body  | 8     |      |
|   | 102-28  | Evaluation of the performance of the top decision-making body   | 8     |      |
|   | 102-29  | Roles of the top decision-making body to identify and manage economic, environmental and social impacts | 8     |      |
|   | 102-30  | Effectiveness of the risk management procedure  | 8     |      |
|   | 102-31  | Review of economic, environmental and social topics   | 8     |      |
|   | 102-32  | Roles of the top decision-making body on reporting of sustainability                                    | 8     |      |
| 102-33                                      | Communication on key agenda                             | 8   |       |      |
| 102-34                                      | Characteristics and the number of issues of materiality | 8   |       |      |
| 102-35                                      | Compensation policies                                   | 8   |       |      |
| 102-36                                      | Procedure to determine the compensation                 | 8   |       |      |
| 102-37                                      | Stakeholder engagement in compensation policies         | 8   |       |      |

104

105

| GRI STANDARDS UNIVERSAL STANDARDS (GRI 100) |        |  |                                    |                 |
|---|--------|--|------------------------------------|-----------------|
| Topic                                       | No.    | Title  | Page                               | Note            |
| GRI 102: Stakeholder Engagement             | 102-40 | List of stakeholders related to the organization                                       | 53                                 |                 |
|   | 102-41 | Collective agreement   |                                    | No labor union  |
|   | 102-42 | Identification and selection of stakeholders   | 53                                 |                 |
|   | 102-43 | Ways of stakeholder engagement   | 53                                 |                 |
|   | 102-44 | Core topics and interests derived from stakeholder engagement                          | 53                                 |                 |
| GRI 102: Reporting practice                 | 102-45 | Affiliate and JV list included in the organization's consolidated financial statements |                                    | Business Report |
|   | 102-46 | Content to be reported and definition of the boundaries of topics                      | 2, 53                              |                 |
|   | 102-47 | List of material topics  | 53                                 |                 |
|   | 102-48 | Re-explanation of information  | 2                                  |                 |
|   | 102-49 | Changes in reporting   | 2                                  |                 |
|   | 102-50 | Reporting period   | 2                                  |                 |
|   | 102-51 | The latest reporting date  |                                    | Website*        |
|   | 102-52 | Reporting cycle  | 2                                  |                 |
|   | 102-53 | Contact point for inquires on the report   | 2                                  |                 |
|   | 102-54 | Reporting method as per GRI Standards  | 2                                  |                 |
|   | 102-55 | GRI Index  | 103-105                            |                 |
|   | 102-56 | External assurance   | 106-107                            |                 |
| GRI 103: Management Approach                | 103-1  | Explanation on material topics and the boundaries                                      | 58, 62, 64, 68, 72, 76, 82, 86, 88 |                 |
|   | 103-2  | Management measures and composition  |                                    |                 |
|   | 103-3  | Evaluation of management measures  |                                    |                 |

\* <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                 | 96   |      |
|  | 201-3 | Coverage of the organization's defined benefit plan obligations     | 97   |      |
| GRI 205: Anti-corruption                     | 205-1 | Evaluation of corruption risks on sites                             | 97   |      |
|  | 205-2 | Notification and training on anti-corruption policies and procedure | 97   |      |
|  | 205-3 | Cases of identified corruption cases and actions taken              | 97   |      |

| GRI STANDARDS ENVIRONMENTAL PERFORMANCE (GRI 300) |       |  |      |      |
|---|-------|--|------|------|
| Topic   | No.   | Title  | Page | Note |
| GRI 301: Materials                                | 301-1 | Weight and volume of raw materials used                          | 98   |      |
|   | 301-2 | Input of regenerative raw materials among the raw materials used | 98   |      |
| GRI 302: Energy                                   | 302-1 | Energy consumption within the organization                       | 99   |      |
|   | 302-2 | Energy consumption outside the organization                      | 99   |      |

**GRI STANDARDS\_ENVIRONMENTAL PERFORMANCE (GRI 300)**

| Topic                             | No.   | Title   | Page | Note |
|-----------------------------------|-------|---|------|------|
| GRI 303: Water                    | 303-1 | Total water withdrawal by source                  | 99   |      |
|                                   | 303-3 | Recycling and reuse of water                      | 99   |      |
| GRI 305: Emissions                | 305-1 | Direct greenhouse gas (GHG) emissions (Scope 1)   | 99   |      |
|                                   | 305-2 | Indirect greenhouse gas (GHG) emissions (Scope 2) | 99   |      |
| GRI 306: Effluents and Waste      | 306-2 | Waste by type and treatment method                | 98   |      |
| GRI 307: Environmental Compliance | 307-1 | Violation of environmental regulations            | 71   |      |

**GRI STANDARDS\_SOCIAL PERFORMANCE (GRI 400)**

| Topic                                   | No.   | Title  | Page  | Note  |
|---|-------|--|-------|---|
| GRI 401: Employment                     | 401-1 | New employment and employee turnover   | 100   |   |
|   | 401-2 | Compensation for regular employees   | 88-93 |   |
|   | 401-3 | Parental leave   | 100   |   |
| GRI 403: Occupational Health and Safety | 403-1 | Percentage of total workforce represented in the joint management-worker health and safety committees  | 100   |   |
|   | 403-2 | Injury and disease prevalence rate   | 101   |   |
| GRI 404: Training and Education         | 404-1 | Average training hours per employee  | 101   |   |
|   | 404-2 | Programs for competency buildup and conversion for employees   | 88-93 |   |
|   | 404-3 | Percentage of employees having been reviewed on periodic performance and career development  | 88-93 |   |
| GRI 405 Diversity and Equal Opportunity | 405-1 | Diversity of governance bodies and employees   | 8     |   |
| GRI 412: Human Rights Assessment        | 412-2 | Employee training on human rights policies and procedure on projects   | 58-61 |   |
| GRI 413: Local Communication            | 413-1 | Management of community engagement, impact assessment and development programs   | 86-87 |   |
|   | 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   | 101   |   |
| 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  | 64-67 |   |
|   | 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 | 79    |   |
| GRI 419: Socioeconomic Compliance       | 419-1 | Violation of laws and regulations on the social and economic domains   | 98    |   |



# Third Party's Assurance Statement

To the Readers of 2019 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.

August, 22, 2019

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            |

108

109

## Awards & Prizes

| 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 "16 <sup>th</sup> 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 "14 <sup>th</sup> 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 "14 <sup>th</sup> 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 2 <sup>nd</sup> 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 18 <sup>th</sup> 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 Su Lim<br>Sang Min Kim                      |
| Infrastructure                   | Civil Works Planning Team, Civil Works Division  | Shoi Don Park                                    |
| Global Business                  | Overseas Planning Team, Overseas Business Division   | Su ki Lim  |
| Ethical Management               | Ethical Management Department  | Kil Ho Shin                                      |
| Legal Compliance                 | Compliance Team, Legal and Compliance Department   | Sang Jun Kim<br>Seul Bi Lee                      |
| HSE Management                   | Safety and Health Management Department  | Sung Jin Lee<br>Seong Su Jeong<br>Kyoung Suk Lee |
| R&D                              | Research and Development Institute   | Hyung Jae Moon                                   |
| Customer Satisfaction            | CS Department, Housing Works Division  | Jeong Ho Lee                                     |
|                                  | Design Research Institute, Housing Works Division  | Eun Jung Hyun                                    |
|                                  | Information Security Team  | Bong Sang Yoo                                    |
| Win-Win Cooperation              | Procurement Planning Team, Sourcing and Procurement Division   | Ji Hye Jeong                                     |
| Social Contribution / SDGs       | Competitiveness and Innovation Team, Strategic Planning Department   | Won Jik Lee<br>Tae Sung Han                      |
| HR / Welfare / Corporate Culture | HR Team, HR Department   | Jin Hyung Lee                                    |
|                                  | Welfare Team, HR Department  | Je Hoon Yoo<br>Sang Jin Um                       |
| Supervised by                    | Secretariat for Sustainability Management and Development (Competitiveness and Innovation Team, Strategic Planning Department) | Seong Hun Ku<br>Gi Beom Nam<br>Tae Sung Han      |

\* English revision by : Taek Jin Chang, Yong Bin Kwon, Joon Ho Son from Overseas Business Division



For this report, we used the paper produced through the materials developed and managed by the duly responsible FSC®/COC (Forest Stewardship Council®) and other properly managed materials. And this report paper was printed in soy ink by a company that earned an FSC®Chain-of-Custody certificate (license code: SGSHK-COC-005559).

