

# Challenge & Change



## About This Report



### Cover Story

Representing LOTTE E&C, Lotte World Tower is an integration of creativity and new technologies, we pursue harmony between the sky and the land.

With the 2015 management principle of "Challenge & Change", LOTTE E&C's commitment to changes and challenges for strengthening future competitiveness is expressed.

### Features of the Report

This LOTTE E&C Sustainability Report is the company's third report of its kind, covering the company's sustainable management activities and performance throughout the year of 2014.

Strategies, goals and performance in six key areas of sustainable management are reported along with LOTTE E&C's major business areas. Major issues devised from materiality test are also included to offer more detailed information to stakeholders.

### Reporting Period and Scope

This report elaborates on the performance of the past three years for stakeholders to identify the trends in the quantitative performance. Some major agenda or significant activities and performance are included in 2015 data.

This report covers our 267 domestic sites including the company headquarters and construction management division, and overseas sites for major issues such as social contribution. There were no significant changes in corporate scale, structure, ownership and supply chain throughout 2014, and consolidated affiliates were excluded from the report.

### Reporting Standards

This report was written in accordance with GRI(Global Reporting Initiatives) G4 Core guidelines and we conducted materiality tests to decide on what to report. The data was generated based on the GRI G4 protocol. Unless otherwise prescribed in the protocol, the data was documented in accordance with the company's management standards, and the documentation standards are indicated herein.

### Reporting Assurance

This report was assured independently by a third-party entity to ensure the level of credibility and reliability. The related information on reporting assurance is described in the assurance report (p.98~99).

### 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 (2012 to 2014): Yearly KRW-USD average exchange rate for the respective years

- Past revenue and order volume in the Profile/History section, and 2015 goals in Issue 1 section: KRW-USD average exchange rate for the year 2014 (for comparison purposes)

\* Year 2012: 1 USD = 1,126.25 KRW

\* Year 2013: 1 USD = 1,094.70 KRW

\* Year 2014: 1 USD = 1,053.21 KRW

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# CEO's Message



**“We commit ourselves to fulfilling our responsibilities as a better value creator to our customers, as a trusted companion to our business partners, and as a corporate citizen who contributes to the sustainable growth in local communities both home and abroad.”**

## Dear distinguished customers and stakeholders at home and abroad,

It is my greatest pleasure to introduce LOTTE E&C to you through the Sustainability Report.

LOTTE E&C does the utmost to enhance the quality of life in all parts of the world. As an affiliate of LOTTE Group, our management activities are based on the Group's mission: "We enrich people's lives by providing superior products and services that our customers love and trust."

Since its establishment in 2012, the Council for Sustainability Management and Development ("Sustainability Council") has actively disclosed yearly performance of LOTTE E&C for mutual growth with domestic and global customers and communities, and for strengthening our sustainable value creating activities.

Regarding the economic aspect, we have enjoyed growth in sales and orders for two consecutive years while our financial structure has steadily improved despite the challenging economic and market conditions in the Korean construction industry.

We seek to offer better values to customers and assure our corporate presence and growth potentials amid the rapidly changing paradigms in the construction industry. Thus we have strengthened our distinctive competence in marketing, design, procurement, construction and project management for our businesses including housing, architecture, plant, civil, and overseas works.

LOTTE E&C has improved its technologies, quality and service standards from its main products including LOTTE CASTLE, Korea's first premium brand apartment house introduced in 1999, high-rise buildings, multipurpose and retail facilities, power, petrochemical and industrial plants, ground transportation facilities and water treatment systems.

In order to secure a safe working environment, we have reinforced our existing health, safety and environment system and disaster prevention measures. We also strive to contribute to the protection and improvement of the environment by applying eco-friendly technology such as application of the greenhouse gas & energy management system and water treatment methods.

On the social aspect, all employees at LOTTE Group abide by the 'Code of Conduct for LOTTE Employees' as the criteria for value judgment in order to strengthen the trust with customers, partners and colleagues.

To achieve mutual growth with our partners, we have strengthened fair trade compliances as well as funding and technical/educational support.

As for the society, we have expanded our CSR activities to make most of our industry-specific skills by all employees home and abroad participating in activities such as worn-out home improvement for the underprivileged, along with many other volunteer works for the community. Employee donation and matching grant programs are under implementation as well.

We commit ourselves to not being complacent with today's success but fulfilling our responsibilities as a better value creator to our customers, as a trusted companion to our business partners, and as a corporate citizen who contributes to the sustainable growth in local communities both home and abroad.

Thank you.

August 2015

President and CEO **Chee Hyun Kim**

# Company Profile

Established in 1959, LOTTE E&C became an affiliate of LOTTE Group in 1978. LOTTE E&C has set a vision of becoming one of "Asia's Top 10 Construction Value Creators" Having the Group's mission as our core management value, we continue to change and challenge.

We've been expanding our business field in domestic and overseas market. As of end of 2014, the number of employees stands at 2,852 along with order volume of USD 5.08 billion, revenue of USD 4.22 billion and operating profit of USD 139 million.

## General Information

Corporate Name	Lotte Engineering & Construction (LOTTE E&C)
Date of Foundation	February 3, 1959 (acquired by LOTTE Group in 1978)
President and CEO	Chee Hyun Kim (inaugurated in March, 2014)
Headquarters	29, Jamwon-ro 14-gil, Seocho-gu, Seoul, Korea
Overseas Operations	16 countries
Main Business	Housing, Architecture, Civil Works and Plant
Credit Rating	'A' by Korea Credit Rating (2014)

### LOTTE Group's Mission

**WE ENRICH PEOPLE'S LIVES BY PROVIDING SUPERIOR PRODUCTS AND SERVICES THAT OUR CUSTOMERS LOVE AND TRUST.**

### LOTTE Group's Vision

**ASIA TOP 10 GLOBAL GROUP**

### LOTTE E&C's Vision

**ASIA TOP 10 CONSTRUCTION VALUE CREATOR**

### Slogan

**Think New! Go Global!**

### Core Value

Customer-focused

Technical Excellence

Originality · Passion

Social Responsibility

### Management Policy

On-site Management

Talent Management

Innovation Management

## HISTORY

### 1959 ~ 1977

#### Foundation

- 1959. 02 Established Pyoung Hwa Construction, Inc.
- 1962. 05 Acquired Dae Young Construction, Inc.
- 1975. 11 Expanded overseas, acquiring the order for 61-B road construction work in Saudi Arabia
- 1977. 10 Acquired overseas construction business license (No.34 from the Ministry of Construction)

### 1978 ~ 1997

#### Acquired by LOTTE Group and Growth of LOTTE E&C

- 1978. 09 Management right acquired by LOTTE Group
- 1986. 09 Established the LOTTE E&C Technology Research Institute
- 1992. 07 Established a branch office in Japan
- 1994. 01 Established a branch office in Beijing, China
- 1995. 06 Acquired the ISO 9001 certification (TUV, Germany)
- 1996. 11 Acquired the ISO 14001 certification (BVQI, UK)

### 1998 ~ 2003

#### External Growth and Brand Management

- 1998. 04 President and CEO Seung Nam Im inaugurated
- 1999. 03 Launched the LOTTE CASTLE brand (Sales initiated for Seocho LOTTE CASTLE 84)
- 2000. 11 Established the Ethics Secretariat
- 2001. 03 Enacted the Standards of Ethical Code
- 2001. 11 Revenues exceeded KRW 1 trillion (approx. USD 949 million)
- 2002. 05 Received the grand prize from Korea Service Awards (apartment housing category) from the Korean Standards Association(KSA)
- 2002. 07 Acquired the KOSHA 18001 certification
- 2003. 07 Ranked 8th in construction capability evaluation by the Construction Association of Korea (Entered the Korean Top 10 construction firm ranking)
- 2003. 12 Acquired the OHSAS 18001 certification
- 2003. 12 Revenues exceeded KRW 2 trillion (approx. USD 1.89 billion)

### 2004 ~ 2013

#### Introduction and implementation of the corporate vision

- 2004. 10 President and CEO Chang Bae Lee inaugurated
- 2005. 10 Declared the Vision 2010
- 2005. 12 Revenues of KRW 3 trillion (approx. USD 2.84 billion) and order volume of KRW 5 trillion (approx. USD 4.74 billion) achieved
- 2006. 08 Established a branch office in Moscow, Russia
- 2007. 10 Established LOTTE E&C India Pvt. Ltd
- 2008. 01 Established LOTTE E&C Vietnam Co., Ltd
- 2008. 07 Established a branch office in Gold Coast, Australia
- 2008. 12 Order volume exceeded KRW 10 trillion (approx. USD 9.49 billion) (over KRW 1 billion from overseas orders)
- 2009. 02 Acquired LOTTE E&M's construction business division
- 2009. 03 President and CEO Chang Kyoo Park inaugurated
- 2009. 09 Declared the Vision 2015

### 2014 ~ Now

#### Changes and Challenges for the Future

- 2010. 02 Established a branch office in Indonesia
- 2010. 07 Ranked 7th in construction capability evaluation by the Construction Association of Korea
- 2010. 08 Acquired the certification for Quality Assurance Program from KEPIC
- 2010. 11 Started construction of Lotte World Tower
- 2011. 03 Acquired the certification for the ASME Nuclear Power Component certification
- 2011. 10 Established a branch office in Pakistan
- 2012. 09 Established LOTTE E&C Malaysia Sdn. Bhd.
- 2012. 11 Launched the CSR Committee (currently, LOTTE E&C Council for Sustainability Management and Development)
- 2012. 12 Declared the Vision 2018
- 2013. 07 Published the first Sustainability Report
- 2013. 10 Won the Sustainability Report Prize at the Global Standard Management Award
- 2013. 12 Revenues exceeded KRW 4 trillion (approx. USD 3.79 billion)

- 2014. 03 President and CEO Chee Hyun Kim inaugurated
- 2014. 05 Initiated Competitiveness Enhancement Program
- 2014. 10 Opened Lotte World Mall
- 2014. 12 Declared the Code of Conduct for LOTTE employees
- 2015. 03 Reached the 100th floor for Lotte World Tower construction
- 2015. 04 Re-established the brand identity of LOTTE CASTLE
- 2015. 07 Received the grand prize from the 2015 Korea Service Awards (apartment housing category) from the Korean Standards Association(KSA) for 14 consecutive years
- 2015. 08 Ranked 71<sup>st</sup> in terms of domestic and global performance among 250 global construction companies by ENR (80<sup>th</sup> in 2014)



# HOUSING

We introduced a brand apartment housing for the first time in the Korean construction market in March, 1999, with 'Seocho LOTTE CASTLE 84', located in the highly demanded Seoul Seocho area. Since then, we have established our brand identity as 'Prestige of Life' and have led the housing culture in Korea. Along with the LOTTE CASTLE apartments, we have diversified our portfolio to include residential & commercial complexes and studio apartments in various methods such as urban improvement projects (redevelopment-reconstruction), self-financed projects and contracted projects, and have implemented project planning, feasibility studies, sales, marketing, design & interior works, construction and maintenance works to provide differentiated quality and service to our customers.

## Sindongbaek LOTTE CASTLE Eco (Dec. 2009 ~ Jun. 2013)

- Site location: Giheung-gu Yongin, Gyeonggi Province
- Construction scale: 3 stories below the ground and from 17 to 40 above, 26 buildings, 2,770 units
- Features of the complex: An eco-friendly residential complex with landscape area of 40%, touting a 6-hole Par 3 golf course, the first of its kind in an apartment complex



# Apartments



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8

**1 Hwamyeong LOTTE CASTLE Kaiser (Mar. 2009 ~ Jun. 2012)**

- Site location: Hwamyeong-dong Buk-gu, Busan
- Construction scale: 4 stories below the ground and 35 above, 48 buildings, 5,239 units
- Features of the complex: 840,000 trees of different species and 12 parks with different themes in the large residential complex where home is within the nature

**2 Bangbae LOTTE CASTLE Arte (Jul. 2011 ~ Nov. 2013)**

- Site location: Bangbae-dong Seocho-gu, Seoul
- Construction scale: 3 stories below the ground and 18 above, 11 buildings, 744 units
- Features of the complex: A complex with eco-friendly design using the cutting-edge façade design and the natural topography

**3 Seocho LOTTE CASTLE President (Dec. 2011 ~ Nov. 2014)**

- Site location: Seocho-dong Seocho-gu, Seoul
- Construction scale: 2 stories below the ground and from 25 to 31 above, 3 buildings, 280 units
- Features of the complex: A complex offering a premium performance of lights and sounds with a media pole installed in the central plaza

**4 Dadae LOTTE CASTLE Blue (Aug. 2011 ~ Aug. 2014)**

- Site location: Dadae-dong Saha-gu, Busan
- Construction scale: 2 stories below the ground and 35 above, 9 buildings, 1,326 units
- Features of the complex: A landmark complex that changed the skyline of Dadae-dong

**5 Bulgwang LOTTE CASTLE (Mar. 2011 ~ Sep. 2013)**

- Site location: Bulgwang-dong Eunpyeong-gu, Seoul
- Construction scale: 5 stories below the ground and 18 above, 9 buildings, 588 units
- Features of the complex: A complex with outstanding community facilities in three zones (Healthy, Culture and Comfort)

**7 Songdo LOTTE CASTLE (Jan. 2010 ~ Nov. 2012)**

- Site location: Songdo-dong Yeonsu-gu, Incheon
- Construction scale: 2 stories below the ground and from 23 to 32 above, 6 buildings, 643 units
- Features of the complex: A complex with a lower part façade with a three-dimensional effect and maximum inter-building distances as each building is crisscrossed

**8 Unjeong New Town LOTTE CASTLE (Jun. 2011 ~ Nov. 2014)**

- Site location: Wadong-dong Paju, Gyeonggi Province
- Construction scale: 2 stories below the ground and from 18 to 30 above, 20 buildings, 1,880 units
- Features of the complex: A complex with community facilities of about 5,000m<sup>2</sup> including an indoor golf club, moms' / kids' café and smart home office.



# Residential and Commercial Complexes



1



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3

## 1 Cheongna LOTTE CASTLE (May. 2009 ~ Feb. 2013)

- Site location: Gyeongseo-dong Seo-gu, Incheon
- Construction scale: 2 stories below the ground and from 43 to 50 above, 8 buildings, 1,326 units (828 units for the apartments and 498 units for the studios)
- Features of the complex: A residential and commercial complex with a rhythmic skyline from design combination of plank type and tower type, trees for environmental remediation (Castle Forest), an artificial waterway (Castle Canal Way), promenades and rooftop landscaping

## 2 Songdo Campus Town (Aug. 2012 ~ Mar. 2016 tentative)

- Site location: Songdo-dong Yeonsu-gu, Incheon
- Construction scale: 3 stories below the ground and 55 above, 8 buildings, 3,065 units (1,230 units for the apartments and 1,835 units for the studios)
- Features of the complex: As a 55-story landmark, a pedestrian-centered complex with the piloti design for the apartment and 100% underground parking space

## 3 Deoksugung LOTTE CASTLE (Sep. 2013 ~ Jul. 2016 tentative)

- Site location: Sunhwa-dong Jung-gu, Seoul
- Construction scale: 5 stories below the ground and 22 above, 3 buildings, 494 units (296 units for the apartments and 198 units for the studios)
- Features of the complex: A residential and commercial complex with outstanding landscaping with a garden concept where the traditional and dignified atmosphere of Deoksugung Palace has been represented in a contemporary way



## LOTTE CASTLE Gold Park

A small-city-sized complex, as part of the 'Southwestern Seoul Renaissance Project', equipped with apartments, studios, offices and hotels (approx. 4,300 units)



### 1 LOTTE CASTLE Gold Park Block 1 (Nov. 2013 ~ Nov. 2016 tentative)

- Site location: Doksan-dong Geumcheon-gu, Seoul
- Construction scale: 2 stories below the ground and from 25 to 35 above, 11 buildings, 1,743 units
- Features of the complex: A complex with all the units facing the south, having a three-dimensional façade design, a large green plaza and promenades

### 2 LOTTE CASTLE Gold Park Block 2 (Apr. 2014 ~ Sep. 2017 tentative)

- Site location: Doksan-dong Geumcheon-gu, Seoul
- Construction scale: 5 stories below the ground and from 14 to 41 above, 4 buildings, 470 units (292 units for the apartments and 178 units for the studios)
- Features of the complex: A complex applying a new plan design with maximized sunlight exposure, ventilation, openness and service areas

### 3 LOTTE CASTLE Gold Park Block 3 (Mar. 2015 ~ Sep. 2018 tentative)

- Site location: Doksan-dong Geumcheon-gu, Seoul
- Construction scale: 5 stories below the ground and from 43 to 47 above, 6 buildings, 1,236 units
- Features of the complex: A complex with a courtyard-type central plaza with the width of 40m, and a sky lounge on the top





# ARCHITECTURE

We engage in construction and remodeling works for urban buildings including high-rise buildings such as the Lotte World Tower, multipurpose and retail buildings, offices, facilities for education, medical service, logistics, leisure, sports and religious activities.

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

## Lotte World Tower (Nov. 2010 ~ Dec. 2016 tentative)

- Construction scale: 6 stories below the ground and 123 above, height of 555m, total floor area of 428,877m<sup>2</sup> (807,613m<sup>2</sup> in total)

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

- Construction scale: 6 stories below the ground and 6 above, total floor area of 378,736m<sup>2</sup>(807,613m<sup>2</sup> in total)





# High-Rise Buildings



1



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2



3

**1 Lotte World Tower**

(Nov. 2010 ~ Dec. 2016 tentative)

- Site location: Sincheon-dong Songpa-gu, Seoul
- Construction scale: 6 stories below the ground and 123 above, height of 555m, total floor area of 428,877m<sup>2</sup> (807,613m<sup>2</sup> in total)
- Features of the project: To be Korea's landmark as well as the world's 6th tallest building, presenting Korea's traditional beauty in both cutting-edge technology and nature

**2 Lotte World Mall (Nov. 2010 ~ Oct. 2014)**

- Site location: Sincheon-dong Songpa-gu, Seoul
- Construction scale: 6 stories below the ground and 12 above, total floor area of 378,736m<sup>2</sup> (807,613m<sup>2</sup> in total)
- Features of the project: Eco-friendly complex equipped with various facilities including duty-free shop, shopping mall, hypermarket, cinema, aquarium and theater

**3 Busan Lotte Town (Feb. 2001 ~ Dec. 2019 tentative)**

- Site location: Jungang-dong Jung-gu, Busan
- Construction scale: 8 stories below the ground and 107 above, height of 510m, total floor area of 581,871m<sup>2</sup>
- Features of the project: A futuristic complex of shopping, cultural, residential, hotel and office facilities that restores Busan's urban functions



# Multipurpose Facilities



1

- 1 Lotte Center Hanoi (May. 2010 ~ Jun. 2014)**
- Site location: Hanoi, Vietnam
  - Construction scale: 5 stories below the ground and 65 above, height of 272m, total floor area of 253,134m<sup>2</sup>, 258 units for the service residence, 318 rooms for the hotel, commercial facilities, offices
  - Features of the project: The first high-rise building constructed by LOTTE E&C abroad, being the first foreign company ever to win the High Quality Construction Prize from the Ministry of Construction and Excellent Site Safety Award from the Ministry of Labor, Invalids and Social Affairs



1



2

- 2 Lotte World Shenyang, China (Nov. 2011 ~ Oct. 2019 tentative)**
- Site location: Shenyang, China
  - Construction scale: 4 stories below the ground and 43 above, total floor area of 1,516,694m<sup>2</sup>
  - Features of the project: LOTTE E&C's first multipurpose facility development project in China (housing, commercial facilities, offices, a hotel, a theme park, etc.)



3

- 3 New Arbat Multipurpose Building, Russia (Sep. 2003 ~ Aug. 2010)**
- Site location: Moscow, Russia
  - Construction scale: 4 stories below the ground and 21 above, total floor area of 142,641m<sup>2</sup>
  - Features of the project: LOTTE E&C's first building construction project in Russia (a department store, offices, a hotel)



4

- 4 Moscow Lotte Business Center (Jan. 2011 ~ Feb. 2013)**
- Site location: Moscow, Russia
  - Construction scale: 2 stories below the ground and 22 above, total floor area of 58,660m<sup>2</sup>
  - Features of the project: LOTTE E&C's first real estate development project in Russia



5

- 5 Lotte Mall Chengdu, China (Nov. 2013 ~ Dec. 2018 tentative)**
- Site location: Chengdu, China
  - Construction scale: 2 stories below the ground and 40 above, total floor area of 568,595m<sup>2</sup>
  - Features of the project: Lotte Group's second landmark project in the western China - Multipurpose facilities comprised of commercial buildings (shopping mall, hypermarket, cinema, office, etc.) and residential buildings



# Retail Facilities



1

## 1 Lotte Mall Suwon (May. 2012 ~ Sep. 2014)

- Site location: Gwoneon-gu, Suwon, Gyeonggi Province
- Construction scale: 3 stories below the ground and 8 above, total floor area of 213,566m<sup>2</sup>
- Features of the project: Gyeonggi Province's symbolical shopping complex that has adopted eco-friendly facilities such as solar power generation and rooftop ecological park

## 2 Lotte Premium Outlet Icheon (Aug. 2012 ~ Feb. 2014)

- Site location: Dancheon-ri Hobeop-myeon, Icheon, Gyeonggi Province
- Construction scale: 3 stories below the ground and 2 above, total floor area of 183,711m<sup>2</sup>
- Features of the project: A large-scale outlet mall consisting of Baekja\* Building and Cheongja\* Building fully reflecting the features of Icheon, an area well known for potteries.

\*Baekja: white porcelain  
\*Cheongja: blue porcelain



1



2

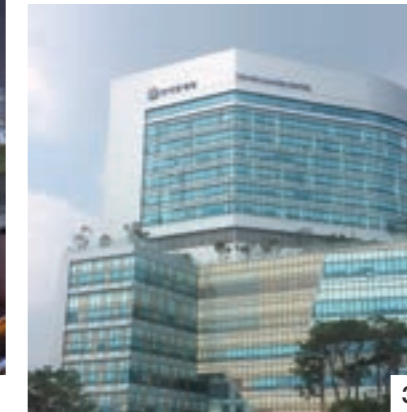
# Accommodation / Office / Medical Service / Logistics / Educational Facilities and Theme Parks



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## 1 Lotte Hotel Busan (Jul. 1992 ~ Nov. 1997)

- Site location: Bujeon-dong Jin-gu, Busan
- Construction scale: 6 stories below the ground and 42 above, 650 rooms
- Features of the project: Korea's highest hotel located at the center of Busan

## 2 Busan Bank Head Office (Dec. 2011 ~ Jul. 2014)

- Site location: Munhyeon-dong Nam-gu, Busan
- Construction scale: 3 stories below the ground and 23 above, total floor area of 59,826m<sup>2</sup>
- Features of the project: A landmark building located in the Busan financial complex, well known as an eco-friendly and hi-tech building

## 3 Yonsei Cancer Center (Jul. 2010 ~ Mar. 2014)

- Site location: Sincheon-dong Seodaemun-gu, Seoul
- Construction scale: 7 stories below the ground and 15 above, total floor area of 105,201m<sup>2</sup>
- Features of the project: A specialized cancer treatment hospital equipped with 510 beds and 64 doctor's offices

## 4 Yeongjeong do 2nd Integrated Logistics Center (Sep. 2013 ~ Aug. 2014)

- Site location: Free Trade Zone, Unseo-dong Jung-gu, Incheon
- Construction scale: Total floor area of 50,439m<sup>2</sup>
- Features of the project: A construction project with multiple contractors (five major duty free shops) with new technologies such as ACT columns, HYFO beams and siphonics

## 5 School of Business Building, Yonsei University (Jan. 2014 ~ Sep. 2015 tentative)

- Site location: Sincheon-dong Seodaemun-gu, Seoul
- Construction scale: 3 stories below the ground and 6 above, total floor area of 20,135m<sup>2</sup>
- Features of the project: An eco-friendly and hi-tech building based on the concept of harmony between the nature and traditions

## 6 Gimhae Lotte Waterpark (Mar. 2012 ~ Jun. 2015)

- Site location: Jangyu-myeon Gimhae, South Gyeongsang Province
- Construction scale: 1 story below the ground and 4 above, total floor area of 46,735m<sup>2</sup>
- Features of the project: An amusement waterpark with indoor and outdoor pools of the largest scale in Korea



# PLANTS

We are at the forefront of establishing national and industrial infrastructure in diverse fields at home and abroad, which include energy generation projects (community energy supply system, cogeneration, LNG combined cycle power, coal-fired thermal power, diesel engine, and renewable energies including SRF, wind energy and PV); petrochemical (storage facilities for raw materials, product manufacturing in upstream and downstream fields); and industrial plants (tires, steel and food & beverages).

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

## Al Manakher Diesel Engine Power Plant, Jordan (Jordan IPP3) (Sep. 2012 ~ Sep. 2014)

- Site location: Al Manakher, Jordan
- Construction scale: 573 MW (38 diesel engine generators of 16 MW)
- Features of the project: A project where LOTTE E&C conducted EPC in the field of Independent Power Plant (IPP) as the world's largest diesel engine power plant, covering 15% of the power capacity for Jordan  
Considering the fuel supply status in Jordan with no endowed resources, power can be generated using diesel and natural gas although heavy fuel oil is the primary fuel source.



# Power Plants



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4

**1 Al Qatrana Combined Cycle Power Plant, Jordan (Jordan IPP2) (Jul. 2008 ~ Aug. 2011)**

- Site location: Al Qatrana, Jordan
- Installed capacity: 377 MW (2 units of G/T 130 MW, 1 unit of S/T 120 MW and 2 units of HRSG 105T/H)
- Features of the project: LOTTE E&C's first overseas power plant project (EPC-based), serving as the stepping stone to advance into overseas power generation market

**2 Andong Combined Cycle Power Plant (Apr. 2012 ~ Jun. 2014)**

- Site location: Gwejeong-ri Pungsan-eup Andong, North Gyeongsang Province
- Installed capacity: 417 MW (1 unit each for G/T 277 MW and S/T 140 MW)
- Features of the project: A power plant that resolved the issue of the energy blind spot in the northern part of North Gyeongsang Province and secured the basis for thermal power supply. The building exterior was designed based on the concept of Korean traditional housing, seeking for cultural harmony. It is the first time that LOTTE E&C is participating in Korea Electric Power Corporation's project.

**3 Yeongheung Thermal Power Plants 5 & 6 (Apr. 2010 ~ Dec. 2014)**

- Site location: Yeongheung-myeon Ongjin-gun, Incheon
- Installed capacity: 2 units of 870 MW plants (coal burning, ultra super-critical once-through thermal power plants)
- Features of the project: Eco-friendly power plants using coal (bituminous coal) which is cheaper than LNG and complying with strict environmental regulatory standards, supplying a significant amount of power used in the metropolitan area. The project enabled LOTTE E&C to make forays into construction projects for coal power plants in Korea and abroad by acquiring the track records of over 100 MW.

**4 Gunsan GE4 Coal Fired Power Plant (May. 2013 ~ Jun. 2016 tentative)**

- Site location: Soryong-dong Gunsan, North Jeolla Province (in the Gunsan Local Industrial Complex)
- Installed capacity: 250 MW (1 unit each for CFBC Boiler 950 T/H and STG 250 MW)
- Features of the project: A coal-fired thermal power plant project to increase the amount of energy supply in the Gunsan Local Industrial Complex, serving as the stepping stone for LOTTE E&C to enter the coal-fired thermal power plant market

\* ST: Steam Turbine      \* GT: Gas Turbine  
\* T/H: Ton per Hour



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**5 Al Manakher Diesel Engine Power Plant, Jordan (Jordan IPP3) (Sep. 2012 ~ Sep. 2014)**

- Site location: Al Manakher, Jordan
- Installed scale: 573 MW (38 units of 16 MW diesel engine power generators)
- Features of the project: The world's largest diesel engine power plant project (EPC)

**6 Pangyo Cogeneration Power Plant (Feb. 2008 ~ Nov. 2010)**

- Site location: Pangyo Land Development District, Seongnam, Gyeonggi Province
- Installed capacity: 146 MW power generating facilities, heating facilities of 175Gcal/h (1 unit each for GT 78 MW, ST 68 MW and HRSG 300T/H)
- Features of the project: A project contributing to stabilizing the power supply in the metropolitan area where outstanding design has been applied beyond the existing image as unwanted facilities

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

- Site location: Yulam-dong Dong-gu, Daegu
- Installed capacity: 415 MW (single shaft system) (1 unit each for GT 274 MW, ST 141 MW and HRSG 150Gcal/hr)
- Features of the project: A natural gas-powered cogeneration power plant supplying energy to Sinseo Innovation City in Daegu

**8 Cogeneration Plant for Gwangju CES / South Jeolla Province (Apr. 2015 ~ Dec. 2017 tentative)**

- Site location: Sanpo-myeon Naju, South Jeolla Province
- Installed capacity: 22 MW power generation facilities, heating facilities of 45Gcal/h
- Features of the project: A project to procure cogeneration power facilities of Korea District Heating Corporation using solid refuse fuel

**9 Cogeneration Plant for Naepo New Town CES (Oct. 2015 ~ Apr. 2018 tentative)**

- Site location: Sapgyo-eup Yesan-gun, South Chungcheong Province
- Installed capacity: Phase 1 - 2 units of SRF power generation facilities of 33.3 MW and 1 unit of HOB 68.8Gcal/h
- Features of the project: A project for the Community Energy Supply System fuelled by new and renewable energy sources (waste plastics and wood pellets), which is LOTTE E&C's first investment and development project on new and renewable energies

\* HRSG: Heat Recovery Steam Generator  
\* CFBC: Circulating Fluidized Bed Combustion



# Petrochemical Plants



1

## 1 Lotte Chemical B Project (Jul. 2009 ~ Oct. 2010)

- Site location: Jungheung-dong Yeosu, South Jeolla Province (in the Yeosu National Industrial Complex)
- Construction scale: Construction of a production plant of Butadiene 130,000 MTA
- Features of the project: Korea's first Butadiene EPC project

## 2 Lotte Chemical P2 Project (Sep. 2010 ~ Jun. 2012)

- Site location: Jungheung-dong Yeosu, South Jeolla Province (in the Yeosu National Industrial Complex)
- Construction scale: Construction of a production plant of PE 250KTA/PP 200KTA and an automatic warehouse (25,640 cells)
- Features of the project: Constructing the HDPE/PP plant for the first time using Lotte Chemical's exclusive technologies

## 3 MSR R1 Project, Malaysia (Jan. 2013 ~ Sep. 2014)

- Site location: Johor, Malaysia
- Construction scale: Construction of Poly-Butadiene Rubber 50KTA production plant
- Features of the project: LOTTE E&C's first Butadiene Rubber EPC project abroad

## 4 LPG Tank Project, Jordan (Sep. 2008 ~ Nov. 2010)

- Site location: Zarqa, Jordan
- Construction scale: Installation of 4 units of 2,000 ton LPG storage tanks and subsidiary facility construction
- Features of the project: LOTTE E&C's first storage tank EPC project abroad

\* MTA: Metric Tons per Annum

\* KTA: Kilo Tons per Annum



2



3



4

# Industrial Plants



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4



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## 1 Lotte Chilsung Beverage's Chugju Beer Factory (Jun. 2012 ~ Oct. 2014)

- Site location: Daesowon-myeon Chungju, North Chungcheong Province
- Construction scale: Construction of beer production facilities (50,000KL)
- Features of the project: Production facilities for 'Kloud', Lotte Chilsung's beer brand

## 2 Hyundai Steel's Dangjin Steel Mill (Jan. 2008 ~ Mar. 2011)

- Site location: Songak-myon Dangjin-gun, North Chungcheong Province
- Construction scale: Coking property/sintering(3,138,000tons/year) sintering(12,000,000 tons/year) constructing steel making plants(8,000,000 tons/year)
- Features of the project: Constructing coking property / sintering / steel making plants at the same time, which covers the major process of Units 1 & 2 of Dangjin Steel Mill

## 3 Lotte Confectionary's Neman Plant, India (Aug. 2008 ~ Dec. 2010)

- Site location: Chennai, India
- Construction scale: Construction of a production plant for chewing gums, pies and biscuits
- Features of the project: Plant Division's first overseas project as the first project in India for LOTTE Group

## 4 Hankook Tire's Plant 1-2, Indonesia (Jun. 2011 ~ Jul. 2015)

- Site location: Cikarang, Indonesia
- Construction scale: PCR\* - 15,000 pieces/day PCR - 16,000 pieces/day (extension work)
- Features of the project: LOTTE E&C's first tire manufacturing plant abroad

## 5 Lotte Chilsung Beverage's Cheongju Soju Factory (Jun. 2014 ~ Dec. 2015 tentative)

- Site location: Naesu-eup Cheongwon-gu Cheongju, North Chungcheong Province
- Construction scale: Construction of soju production facilities (Bottle 1,000BPM / PET 150 BPM)
- Features of the project: Extension of a production plant for Chumchurum (meaning "like the first time" (pure) in Korean), a soju brand of Lotte Chilsung



# CIVIL WORKS

LOTTE E&C contributes to the 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, sewage and 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, design & construction to post-construction facility maintenance.

## Gwangan Bridge (Dec. 1994 - Dec. 2002)

- Site location: Namcheon-dong Suyeong-gu ~ U-dong Haeundae-gu, Busan
- Construction scale: 7.42km in total (a suspension bridge of 0.9km, a truss bridge of 0.72km and an approach bridge of 5.8km), width of 18-25m, four-lane divided roadways, a double-deck structure
- Features of the project: A sea-crossing bridge for smooth bypass shipping of the port and industrial trading volume in Busan





# Ground Transportation Facilities



1

**1 Section 4 of Seoul-Chuncheon Expressway - Private Investment Project (Aug. 2004 ~ Jul. 2010)**

- Site location: Seojong-myeon Yangpyeong-gun ~ Seorak-myeon Gapyeong-gun, Gyeonggi Province
- Construction scale: 7.32km in total, four-lane, 6 bridges (1,044m), 2 tunnels (912m, two-lane), 1 IC (Seojong IC)
- Features of the project: Seeking for balanced development of the national territory through an expressway network connecting the metropolitan area and Gangwon region

**2 Section 3 of Yongin-Seoul Expressway - Private Investment Project (Oct. 2005 ~ Jun. 2009)**

- Site location: Suji-gu Yongin ~ Bundang-gu Seongnam, Gyeonggi Province
- Construction scale: 3.94km in total six-lane, 7 bridges (1,259m), 2 tunnels (1,330m), 1 IC (Seo-Bundang IC)
- Features of the project: Complementing Gyeongbu Expressway with traffic congestion due to rapid urbanization in the southern part of Gyeonggi

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

- Site location: Lao Cai Province, Vietnam
- Construction scale: Improvement of the existing railway (L=73.9km) and bridges (5 in total), slope protection, communications & signaling system
- Features of the project: LOTTE E&C's first civil work in Vietnam, contributing to the development of tourism resources and transport of resources in Hanoi-Lao Cai

**4 Honam High-speed Railway Section 2-1 (Sep. 2009 ~ Dec. 2015 tentative)**

- Site location: Gyeryong-myeon Gongju ~ Noseong-myeon Nonsan, South Chungcheong Province
- Construction scale: 8.38km in total, 6 tunnels, 1 station (Gongju Station), 7 bridges (1 PSC BOX, 6 rigid-frame bridges)
- Features of the project: Forming transport and living access between Osong and Gwangju Songjeong to establish a national transportation system with traffic sharing functions by modes of transport that are all inter-connected

**5 Seoul Subway Line 9 Phase 3 Section 920 (Dec. 2009 ~ Mar. 2018 tentative)**

- Site location: Seokcheon-dong Songpa-gu (Seokcheon Station) ~ Bangi-dong (South Gate 4 of Olympic Park)
- Construction scale: 1.391km in total (TBM shield tunnel 0.945km, open cut box 0.119km, etc.), 1 station (Bangi Sageori St.)
- Features of the project: Phase 3 project of Subway Line 9 (expected to open in Oct. 2018 from Sports Complex to Korea Veterans Hospital) where all intervals will be constructed with TBM shielding



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**6 Banghwa Grand Bridge (Dec. 1995 ~ Nov. 2000)**

- Site location: Banghwa-dong Gangseo-gu, Seoul ~ Gangmae-dong Goyang, Gyeonggi Province
- Construction scale: 2.559km in total, width of 27.8m, six-lane
- Features of the project: Constructed as the 27th bridge crossing the Han River, which is the starting point for Incheon International Airport Expressway connecting the airport and the metropolitan area

**7 Eulsukdo Grand Bridge - Private Investment Project (Jan. 2005 ~ Jan. 2010)**

- Site location: Sinpyeong-dong Saha-gu ~ Myeongji-dong Gangseo-gu, Busan
- Construction scale: 5.205km in total, width of 25.5~35m, six-lane
- Features of the project: As a maritime bridge, contributing to a smooth flow of trading volumes between Busan New Port and the existing Busan Port as well as logistics cost reduction

**8 Busan Lotte Town Yeongdo Bridge Improvement-Restoration Works (Jul. 2007 ~ Jul. 2014)**

- Site location: Jungang-dong Jung-gu ~ Daegye-dong Yeongdo-gu, Busan
- Construction scale: 0.215km, six-lane, bascule bridge
- Features of the project: Korea's first land connecting bridge and the only single-leaf bascule bridge. After being designated as Monument No.56 by Busan Metropolitan Government in 2006, the number of lanes was expanded and bascule functions were restored.

**9 Section 2 of Jeokseong-Jeongok Highway (Jul. 2009 ~ Dec. 2015 tentative)**

- Site location: Namgye-ri Gunnam-myeon Yeoncheon-gun ~ Dongi-ri Misan-myeon, Gyeonggi Province
- Construction scale: 2.34 km in total, width of 20.0m, four-lane, 1 bridge (Dongi 1st Bridge: Cable-stayed bridge with length of 0.4km and width of 20.9m), 1 interchange
- Features of the project: A landmark bridge in Yeoncheon and Korea's longest earth-anchored steel composite cable-stayed bridge. Using the gravity-type anchorage, structural stability is secured and marine pollution is reduced through the erection method on the ground



7



8



9



# Water Treatment Systems



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1

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

- Site location: Sangdo-dong Nam-gu, North Gyeongsang Province (in the Pohang Sewage Treatment Plant)
- Construction scale: 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)
- Features of the project: Korea's first and largest project to recycle 100,000 tons of water a day as industrial water to resolve water shortage and stably secure water resources in Pohang

# Ports / Golf Courses / Dams / Site Renovation



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## 1 General Cargo Terminal Construction of Incheon North Port (1 DWT 20,000ton berth) (Apr. 2007 ~ Dec. 2009)

- Site location: Neighborhood of Wonchang-dong Seo-gu, Incheon
- Construction scale: 1 DWT 20,000ton berth, quay wall of 201m, bank protection works of 225m, land formation of 37,800m<sup>2</sup>, 1 building
- Features of the project: A higher cargo handling capacity in the metropolitan area, contributing to the local development by reducing the logistical cost and traffic congestion, etc.

## 2 Seetech's Berth Structure Extension Work (#6BERTH) for Daesan Port (Oct. 2012 ~ Oct. 2014)

- Site location: Neighborhood of Daejuk-ri Daesan-eup Seosan, South Chungcheong Province
- Construction scale: 1 cargo handling wharf, 4 breasting dolphins, 4 mooring dolphins
- Features of the project: Shipping and unloading wharf extension work that covers logistical services at the Daesan Petrochemical Complex, contributing to the expansion of a logistical supply capacity

## 3 Cheongna Bear's Best Golf Club (Sep. 2009 ~ Jan. 2012)

- Site location: Cheongna District Gyeongseo-dong Seo-gu, Incheon
- Construction scale: 1,360,105m<sup>2</sup>, 27 holes, 28 greens, 116 tee boxes, club house
- Features of the project: A golf course to play the best 27 holes out of 290 golf courses designed by Jack Nicklaus (Nicklaus-designed courses include the European Course, American Course and Australian Course)

## 4 Lotte Skyhill Buyeo Country Club (Jun. 2010 ~ Apr. 2013)

- Site location: Gyuam-myeon Buyeo-gun, South Chungcheong Province
- Construction scale: 950,640m<sup>2</sup>, 18 holes, 18 greens, 58 tee boxes, club house
- Features of the project: An eco-friendly golf course to take a glimpse of the natural environment and the Baekjae\* culture (General Gyebaek Course and King Uija Course)

## 5 Heightening Work of the Reservoir Embankment for Agriculture at Damyang Lake (Sep. 2011 ~ Mar. 2014)

- Site location: Daeseong-ri Geumseong-myeon Damyang-gun, South Jeolla Province
- Construction scale: Embankment (B=20m, L=306m), overflow weir (L=62m), tailrace (L=293.5m), displaced road (L=1.89km)
- Features of the project: Heightening the existing reservoir by 2m to secure safety of the bank and increasing the flood control capacity, thereby reducing flood damage

## 6 Specialized Project for Nanji Hangang Park (Jul. 2008 ~ Jun. 2010)

- Site location: Hongjicheon Stream Sangam-dong Mapo-gu ~ Nanjicheon Stream, Seoul
- Construction scale: Land area of 776,000m<sup>2</sup>, 2 bridges (357m), 1 driveway (57m), 2 building architectures
- Features of the project: Improving accessibility by installing bridges to connect nearby Noeul ('sunset'), Haneul ('sky') Park and Pyeonghwa ('peace') Park as part of the Han River Renaissance Project

\* Baekjae: A kingdom located in southwest Korea (18 BC ~ 660 AD)



1



1 Lotte Center Hanoi, Vietnam

2 Al Manakher Diesel Engine Power Plant (IPP3), Jordan

3 Yen Vien-Lao Cai railway Upgrading Project Construction Package No.3, Vietnam



2



3

# OVERSEAS

We have project experience in 16 countries in 6 regions i.e. Southeast Asia (Indonesia, Vietnam, Malaysia, Brunei, Myanmar and Cambodia), Northeast Asia (Japan, China and Mongolia), Southwest Asia (India and Pakistan), CIS (Russia and Uzbekistan), Africa / Middle East (Jordan and Qatar) and Oceania (Australia).

We provide differentiated values to customers and carry on our solid growth momentum based on our strategies of selection and concentration, focusing on flagship products by business area which include high-rise buildings, multipurpose and retail facilities, power plants, petrochemical and industrial plants, ground transportation facilities (roads, railways and subway), water treatment systems, hydro power plants and housing, etc.



# Major Overseas Works

**Russia**

- 1 Moscow Lotte Business Center
- 2 New Arbat Multipurpose Building
- 3 St. Petersburg Hotel Construction Project Management

**Jordan**

- 1 Al Manakher Diesel Engine Power Plant (IPP3)
- 2 Al Qatrina Combined Cycle Power Plant (IPP2)
- 3 LPG Tank Project

**Qatar**

- 1 Doha Metro Red Line North and Green Line Elevated and At-Grade Sections

**Pakistan**

- 1 Gulpur Hydropower Plant

**India**

- 1 Lotte Confectionary's Neman Plant

**China**

- 1 Shenyang Lotte World
- 2 Lotte Mall Cheongdu
- 3 Extension Works for the Consular Office of the Korean Embassy in China

**Japan**

- 1 Reconstruction Works for the Korean Embassy in Japan (Government Office and Residence)
- 2 Mary's Chocolate Factory

**Republic of Korea**

- 1 Lotte World Tower

**Vietnam**

- 1 Lotte Center Hanoi
- 2 Yen Vien - Lao Cai Railway Upgrading Project CP3

**Indonesia, Malaysia**

- 1 Hankook Tire Plant, Indonesia
- 2 R1 Project, Malaysia
- 3 Titan-T Project, Malaysia





# OUR MATERIAL ISSUES

LOTTE E&C has selected five issues based on the materiality test that significantly impact its sustainable management and grab the biggest attention from stakeholders, and has made an in-depth report on them.


40	Six Trends in the Construction Industry
42	Stakeholder Engagement and the Materiality Test
44	Strengthening Future Competitiveness
48	Prevention-oriented On-site Safety Management
50	Response to Climate Change
52	Establishing a Creative Corporate Culture
54	Creating Shared Value with Communities



# Six Trends in the Construction Industry

The construction industry confronts numerous changes in the aspects of industry / economy, domestic and overseas policy, safety, technologies, environment and society / culture. LOTTE E&C is rising as a market leader by preemptively analyzing such changes in trends and devising countermeasures.

### Industrial / Economic Aspect




Trend 01

- ▶ **Domestic** Entry into a low-growth structure found in advanced countries, intensified coupling with the global economy and a greater portion of the cutting-edge soft industries
- ▶ **Overseas** Higher needs in the construction industry in line with the national territorial / economic development plans

Korea is shifting toward a low-growth economic structure with intensified coupling with the global economy as seen in advanced countries. Moreover, shifting of the industrial structure puts a greater burden on the cutting-edge soft industries.

Globally, medium-and long-term national territorial development and economic development master plans are crystalized, especially in developing and newly emerging countries. This boosts needs for the construction industry especially for infrastructure, urban development and scale-up of industrial facilities.

### Technology Aspect



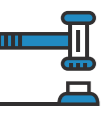
Trend 04

- ▶ **Domestic** Enhanced technological prowess of medium-sized enterprises and local companies abroad where construction companies have advanced
- ▶ **Overseas** Competencies for technology and business management rising as a differentiating factor for competitiveness

Due to upgraded technological competencies in the industry, large construction companies have established know-how on overall method development, VE cost reduction, project management, etc.

This enhances their differentiated competitiveness, while strengthening technological development by collaborating with external expert organizations including universities and research centers

### Policy / Institutional Aspect




Trend 02

- ▶ **Domestic** Investment decrease in the construction sector expected due to a greater focus on welfare, implementation of short-term economically stimulating investment, and sufficient infrastructure
- ▶ **Overseas** Increased investment in improving people's livelihood post to the Jasmine Revolution and changes in doing business due to vulnerabilities in government finance

In Korea, investment in construction is shrinking as infrastructure has been secured to a certain degree and people's interest lies in welfare more than in economic growth. In the medium and long-term, investment in construction is expected to decrease as is already happening in advanced countries.

By contrast, a different paradigm is shown in developing and newly emerging countries. After the Jasmine Revolution that began in Tunisia in 2010, many countries have scaled up investment in construction to improve the essentials of people's living. However, many of these countries, except for a few that are affluent in energy are lacking in finance and struggling to procure investment resources which consequently brings about changes in the way of doing business for construction companies.

### Environment Aspect




Trend 05

- ▶ A paradigm shift toward the environment including climate changes
- ▶ Stronger needs for the roles of construction companies to heal the world's environment
- ▶ A need to select business methods with a lower environmental load
- ▶ Increased business opportunities related to the environment expected

Due to multiple earthquakes and climate changes, construction companies are expected to further focus on their roles as healers of the environment beyond a passive concept by constructing green buildings, etc.

Moreover, they are required to make choices with the smallest environmental load in the perspective total life cycle, ranging from portfolio strategies to planning, designing, constructing and doing maintenance work for individual projects.

### Safety Aspect




Trend 03

- ▶ Increased social interest and concerns about safety
- ▶ Intensified safety rules and regulations
- ▶ Survival of companies with vulnerabilities in safety becoming difficult

As 'safety' has emerged as a significant social issue, there is a greater need for preemptive safety management activities in companies, and related rules and regulations have been also intensified.

Moreover, government institutions and clients further emphasize the importance of safety, and demand continued and greater investments in safety measures.

### Socio-cultural Aspect



Trends 06

- ▶ A greater need for transparency, ethical awareness and the roles of corporate citizens
- ▶ Changes in needs in the housing market, etc. amid changes in the population and family structures

In corporate management, securing transparency, ethical management and fulfilling the social responsibilities as corporate citizens have become increasingly important.

Amid changes in the population and family structure with the increase in the number of the elderly people, nuclear families, and a consumers below 40, needs for housing products and purposes for buying a house have diversified.



# Stakeholder Engagement and the Materiality Test

## Step 1. Devising an Issue Pool of Stakeholders

Issues of materiality are selected through various channels, and an issue pool has been formed accordingly.

### Methods of Devising an Issue Pool

Analysis of internal policies and documents

Interviews with departments related to sustainable management

Stakeholder surveys

Media research

Benchmarking of top-notch companies

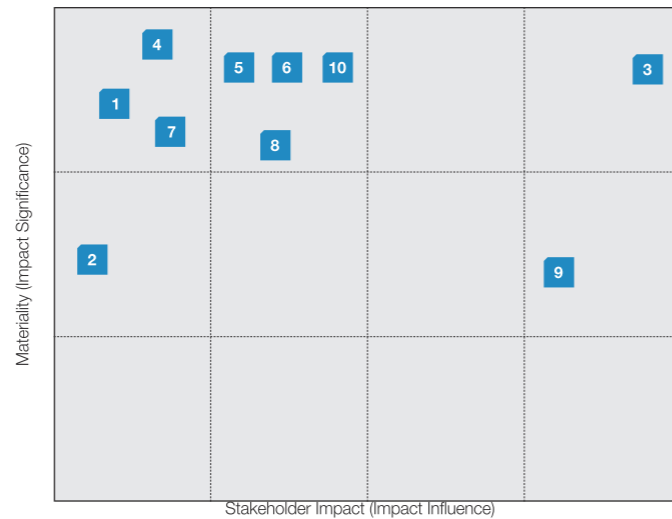
Analysis of international standards

## Step 2. Evaluation of the Issues and Selection of Issues of Materiality

The materiality test was conducted for issues that stakeholders are highly interested in, considering the relevance with sustainable management and their impact on sustainable management.

Issues of materiality were selected based on the evaluation results, and used for the Sustainability Report.

### Materiality Test Matrix



In order to identify stakeholders' interest and issues and make immediate responses, we have set stakeholder communication channels online and offline to gather their feedback.

## Step 3. Setting Strategies to Respond to Each Issue

LOTTE E&C has set response strategies and goals for issues of materiality, and conducts activities for sustainable growth.

- Activities to strengthen competitiveness
- Activities to respond to safety management and climate change
- Activities of generating shared value with employees and communities

### LOTTE E&C's Responses for Each Issue of Materiality

Material Issue	Issue	GRI Aspect	Page	Boundary
Strengthening Future Competitiveness	1 Intensifying technical competencies	Non-GRI	44, 45, 84-86	Internally and externally
	2 Managing the brand and corporate image			
Prevention-Oriented On-site Safety Management	3 Preemptive safety management activities	Industrial safety and healthcare	48, 49, 60, 61	Internally and externally
	4 Establishing globally competitive environment / Safety systems			
Climate Change Response	5 Continued efforts for climate change response	Energy, emissions	50, 51, 57-59	Internally and externally
	6 Activities to reduce environmental impact on sites			
Formation of a Creative Corporate Culture	7 Facilitation of communication (communication management)	Labor-management relationships, complaint handling in labor practices, complaint handling in terms of human rights, non-discrimination	52, 53, 62-65	Internally
	8 A work-life balance			
Creating Values for Communities	9 Site-oriented and community-focused activities	Communities, direct economic effects	54, 55, 78-80	Internally and externally
	10 Management of social contribution activities in consideration of the nature of the business			

## Step 4. Publishing the Report and Listening to Stakeholders' Feedback

After publishing the report, we take feedback from stakeholders on activities and performance of sustainable management, and reflect it in corporate schemes and management activities.

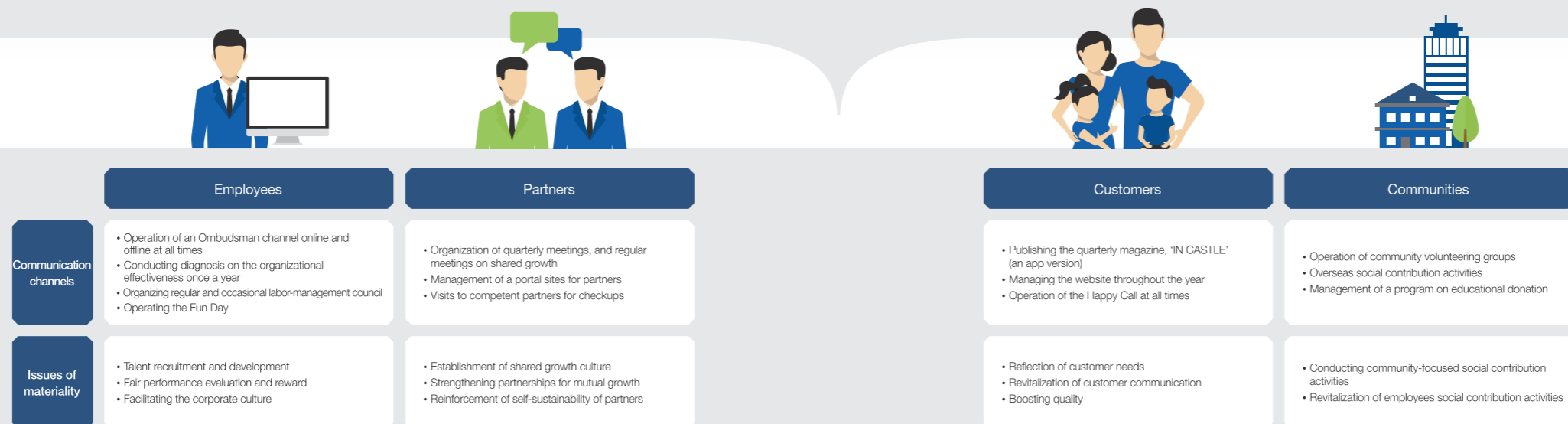


LOTTE E&C's 2015 Sustainability Report



## LOTTE E&C's Stakeholder Communication

LOTTE E&C reflects stakeholders' feedback throughout the entire management activities.





# Issue 1

## Strengthening Future Competitiveness

### MATERIALITY OF THE SELECTED ISSUES

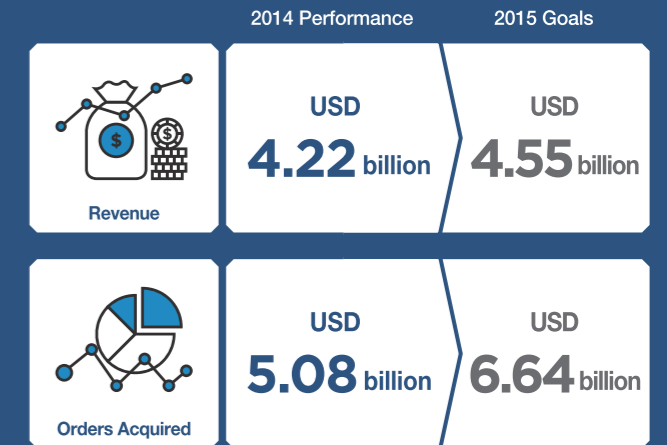
In order to proactively respond to the rapidly changing construction market and establish a basis for sustainable growth, we launched an exclusive business unit for further innovation within the Strategic Planning Department in May 2014. We also have established and practiced competitiveness enhancing measures in each field in cooperation with each division i.e. housing, architecture, plant, civil works and overseas.

Measures to strengthen future competitiveness were established by benchmarking leading construction companies abroad and domestic competitors, and comparing our current status with theirs throughout the value chain in the construction industry in areas including marketing, sales, design, quotation, procurement, construction and business management. We plan to continuously review action plans by finalizing targets and tasks to fulfill, supervising activities and establishing timelines.

### APPROACHES TO THE ISSUES

- Strengthening the brand power of LOTTE CASTLE
- Achieving the top-notch level in high-rise buildings and multipurpose and retail facilities
- Enhancing EPC process and differentiating competencies
- Increasing competencies for implementing ground transportation facilities and water treatment systems
- Focusing on key products for feasible overseas projects

### MAJOR PERFORMANCE AND GOALS



### Housing

LOTTE CASTLE has won the grand prize from Korea Service Awards by the Korean Standards Association (KSA) for 14 consecutive years as it has adopted a branded apartment concept for the first time in the Korean housing market. It has led the residential culture in Korea in various manners including in-house projects, redevelopment / reconstruction and subcontracting.

The housing market in Korea has witnessed fundamental changes in its paradigm with the increase in the number of customers in their 30s to 40s, increase in nuclear families, and an aging population leading to increased needs for housing to play the role as a living place rather than merely an investment target.

With this in mind, the LOTTE CASTLE brand has realigned its framework for competitiveness. In 2014, we redefined its brand identity in conjunction with a global brand consulting firm, covering missions and visions for the brand to pursue. We put in place processes to research and reflect customer needs in a preemptive manner throughout the entire areas of marketing, design, construction and post management.

We are currently upgrading its design based on the newly set brand identity, and plan to complete the brand identity project by end of 2015 and apply it gradually to new projects.

#### Directions to Strengthen Competitiveness in Housing



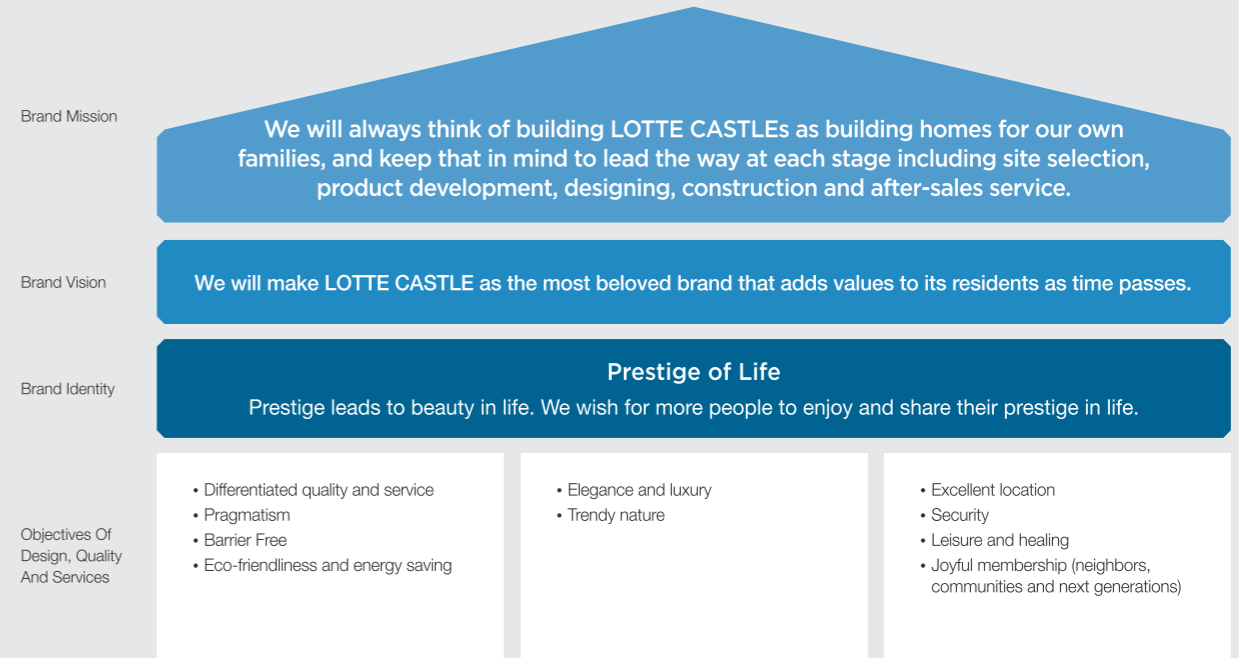
Risks	Opportunities
<ul style="list-style-type: none"> <li>• Changes in the cycle of the housing market</li> <li>• Changes in the major customer groups and the population / household structure</li> </ul>	<ul style="list-style-type: none"> <li>• Government policies to facilitate the housing market</li> <li>• LOTTE CASTLE's experiences in advancing into major cities nationwide (Seoul / metropolitan area, Daegu, Busan, Ulsan, Changwon, Gwangju, Jeonju, Daejeon, etc.)</li> <li>• A greater awareness of the value of a branded apartment</li> <li>• LOTTE CASTLE's exclusive brand power</li> </ul>
<ul style="list-style-type: none"> <li>• Received the grand prize in the apartment category from Korea Service Awards for 14 consecutive years (2015.7)</li> <li>• Ranked fourth in the apartment category in the National Customer Satisfaction Index (NCSI) (2015.6)</li> </ul>	

The newly established brand of LOTTE CASTLE has clarified its mission, vision, identity and core values. The brand mission is to "always think of building LOTTE CASTLEs as building homes for our own families, and keep that in mind to lead the way." The brand vision, meanwhile, is "to be the most beloved brand that adds values to its residents as time passes."

The mission and vision of LOTTE CASTLE clearly convey the spirit of LOTTE CASTLE's quality service to customers without using any empty rhetoric, and focuses on ensuring that all employees can remember them easily and work towards achieving them.

The brand identity is the 'Prestige of Life', which implies to "prestige leading to beauty in life, and wishing for more people to enjoy and share their prestige in life." It suggests the future directions of LOTTE CASTLE's design, quality and service in consideration of social changes such as increase in nuclear families and customers in the age from 30s to 40s, as well as aging population.

#### LOTTE CASTLE's Brand House






## Architecture

We will intensify our technological prowess for high-rise buildings based on our experiences with Lotte World Tower which will be completed in 2016, and take part in domestic and overseas projects of LOTTE Group's affiliates including Lotte Hotel and Lotte Shopping. This will make the already established project execution competencies even more systematic. As a result, we will rise higher as a top-notch construction company in the field of multipurpose and retail facilities using our expertise in construction of high-rise buildings at home and abroad.

With regard to high-rise buildings, the lowest price bidding is the norm among construction companies with relevant construction experiences. We offer differentiated services including project planning, pre-construction services to review adequacy of technologies, methods and cost, tenant marketing, project management, construction and post-construction management.

As for multipurpose and retail facilities, our multi-faceted experiences are proven by domestic and overseas projects as well as Lotte World Tower, development of promising projects in consultation with affiliates in LOTTE Group, inducement of tenants in advance, business planning including permit & approval, feasibility study, design & engineering, construction and maintenance.

**Directions to Strengthen Competitiveness in Architecture**



**Leader in High-rise and Multipurpose Facilities**

Risks	Opportunities
<ul style="list-style-type: none"> <li>Intensified price competition among companies with high-rise building technologies</li> <li>Standardization of technologies among construction companies</li> <li>Intense competition in the general building sector at home and abroad</li> <li>Risks in executing business depending on the level of localization abroad</li> </ul>	<ul style="list-style-type: none"> <li>Increase in the number of mega cities due to urbanization (over 10 million)</li> <li>A higher demand for high-rise buildings, multipurpose / retail facilities for efficient utilization cities</li> <li>Having experiences throughout the entire processes of business planning, construction and management of high-rise buildings</li> </ul>

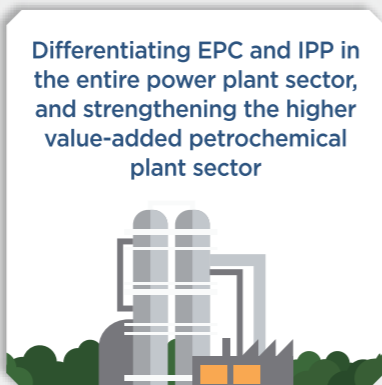
## Plants

Our plant business, making foray into the fields of power plants, petrochemical and industrial plants, has strengthened our competencies by sophisticating the EPC process including project exploration, design, procurement, construction and project management, and by securing and developing personnel in leaders' level.

As for the power plant business, we have built our global capacity through diverse project implementation methods such as project exploration and feasibility studies, financing-involved IPP, EPC and build-only for LNG cogeneration, coal-fired generation and diesel internal generation, as well as expanding to renewable energy sector such as SRF(Solid Refuse Fuel), wind energy and photovoltaic solar energy in order to respond to the fast-changing power plant market both home and abroad.

For petrochemical and industrial plant works, we will focus on improving our capacity for the higher value-added petrochemical products such as special rubber, as well as steadily expanding our strong market including food & beverage and tire production.

**Directions to Strengthen Competition in Plants**



**Differentiating EPC and IPP in the entire power plant sector, and strengthening the higher value-added petrochemical plant sector**


Risks	Opportunities
<ul style="list-style-type: none"> <li>Power Plants: possible shrinkage in new investment due to the sufficient electricity power reserve rate</li> <li>Petrochemical Plants: limitation of the domestic captive market and features of the cycle in the global market</li> </ul>	<ul style="list-style-type: none"> <li>Power Plants: continued demand for investment in developing and newly industrialized countries amid economic and industrial development</li> <li>Petrochemical Plants: an increasing need for higher value-added petrochemicals in the global market</li> </ul>

## Civil Works

We have strengthened project model-specific planning, feasibility studies and technologies in various forms of business schemes including build-only, turnkey, BTL, BTO and PPP. Here, we have a particular focus on marketable and differentiated products including ground transportation facilities such as roads, railways and subways, site renovation, water treatment systems and ports, all of where we have abundant experience and strengths.

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

**Directions to Strengthen Competitiveness in Civil Works**



**Securing Differentiated Competitiveness in Ground Transportation and Water Treatment Systems**

Risks	Opportunities
<ul style="list-style-type: none"> <li>Shrinkage in the market scale due to the saturated infrastructure stock</li> <li>Intensified competitions abroad</li> <li>Difficulties in maintaining competitive advantage without differentiated technologies and business competencies</li> </ul>	<ul style="list-style-type: none"> <li>Increasing demand for investing in infrastructure in developing and newly emerging countries</li> <li>Ground transportation and water treatment markets, where we have competencies, are on the growth</li> </ul>

## Overseas Works

Unlike our competitors home and abroad, we have improved our competitiveness in a differentiated way by localizing in prioritized countries where LOTTE Group's affiliates have entered into.

Especially in 2014, we have reestablished our business strategies in LOTTE Group's six key target countries, i.e., Vietnam, Indonesia, Russia, Pakistan, China and Japan, and have successfully reinforced local talent for marketing and engineering in Vietnam and Indonesia.

As overseas projects accompany not only opportunities but also great risks, our focus has not been on short-term external growth but on strengthening our capacity all throughout marketing, sales and project implementation under the policy of maintaining sound and stable growth to secure future growth engines.

**Directions to Strengthen Competitiveness in Overseas Works**



**Focusing on prioritized target countries (Lotte Group's target and their neighboring countries) with key products for feasible projects**

Risks	Opportunities
<ul style="list-style-type: none"> <li>Intense competition with domestic, international, and local companies</li> <li>Increase in self-financing projects due to financial problems in target countries</li> <li>Possibilities of major insolvencies from contractual and construction risks</li> </ul>	<ul style="list-style-type: none"> <li>Continued growth of the construction industry in developing and emerging countries owing to economic and industrial development</li> <li>Utilization of brand awareness in Lotte Group's target countries</li> <li>Improvement of localization capabilities from implementing Lotte Group-related projects</li> </ul>



# Issue 2

## Prevention-oriented On-site Safety Management

### MATERIALITY OF THE SELECTED ISSUES

Safety accidents might not only significantly hurt corporate management but also claim precious lives and destroy happiness of a family.

In 2014, we realigned and complemented the prevention-oriented safety management process. Meanwhile in 2015, we declared safety management as one of the five management principles, deeply rooting the safety-first culture.

### APPROACHES TO THE ISSUES

- Enhancing safety inspection
- Establishing a culture for on-site safety management

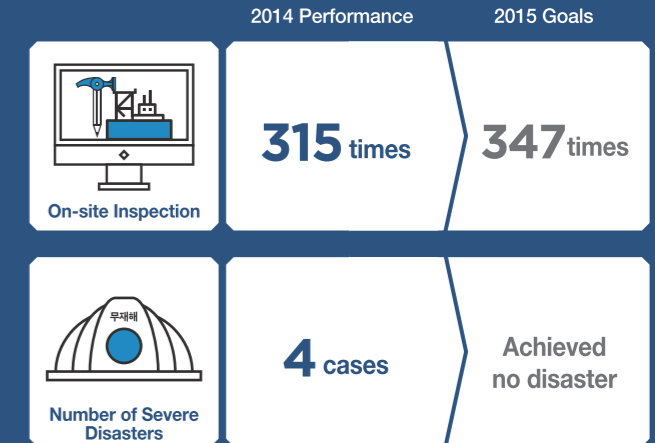
### RISKS

- Increasing social interest in safety and stricter regulations on punishment
- No survival of companies failing to comply with safety standards

### OPPORTUNITIES

- Minimizing personnel and property damage through accident prevention
- Enhancing the corporate image and brand value through safety management

### MAJOR PERFORMANCE AND GOALS



### Enhancing Safety Inspection

#### | Conducting On-site Safety Inspection

We prevent severe disasters and safety accidents through intensive safety inspection throughout the site management. Inspection on whether or not the safety and health management system has been implemented is strengthened along with pre-inspection of sites' safety management plans prior to ground breaking. As a result, we preemptively manage potential safety risks

In 2014, safety inspections took place 315 times, that is, 3.1 times per site. We detected five defective sites and realigned their safety management systems thoroughly.

#### | Extending Customized Support for Each Site

Customized support is extended to high-risk sites including large-scale sites and sites with no statutory safety managers in place. For speedy construction work with the intensive injection of equipment and personnel, we provide a sufficient number of safety personnel, and equipment such as fire extinguishers and handrails. For sites requiring intensive management, the safety inspection team under the headquarters is dispatched to block any blind spots for safety management, thereby doing our best to prevent any accidents.

### Establishing a Culture for On-site Safety Management

#### | Developing Banners to Disclose the Results of Safety Environment Inspection

In order to share the on-site inspection results with all the employees and raise awareness of the issue by revealing the site-specific rank, we developed PC-based banners. The banners show the comparison of average scores of each business division, classified ranks per month, photos of inappropriateness and actions taken by the site and statistical information by items on inappropriateness.

#### | Producing the Handbook on Safety Environment

We produced and distributed the 'Handbook on Safety Environment', a summary of the work flow upon the occurrence of disasters, risk analysis & equipment safety inspection process and case studies by task.

The handbook was produced by each business division by fully reflecting the features of architecture, civil and plant works. It has mostly photos and illustrations on disaster cases and safety rules which makes it easier to understand the content.

#### | Conducting Events for the Safety Inspection Day for Sites Nationwide

Events for the 'Safety Inspection Day' were expanded to be organized by the CEO instead of heads of each site to raise safety awareness. We also conduct events for the 'Sites' Day' and 'Supporting Day for Completion of Construction.'

In 2015, we held the "Safety Inspection Day" event in every site around the country in order to instill sense of safety to all employees. For major sites including new construction work for a business hotel in Janggyo 5 District, the CEO visits the site frequently to check the safety disclaimers and preventive measures. With the site employees and partners' CEOs, he communicates on challenges and gives suggestions regarding the site.



Attendance of the CEO for site inspection

“Safety management is the most critical management principle at the headquarters and sites alike. Let’s do our best for prevention-oriented safety activities and address disasters with transparency in order to establish a virtuous cycle for safety management.”

- The CEO's message during the site visit -



Handbook on safety environment

On-Site Safety Inspection Procedure	
On-site inspection	<ul style="list-style-type: none"> <li>• Strengthening inspection on whether or not the safety and health management system is implemented</li> </ul> <p>Attendance in meetings    On-site inspection    Attendance in work safety meetings    Interviews with supervisors    Overall evaluation</p>
Strengthening feedback on inspection results	<ul style="list-style-type: none"> <li>• Inspecting around technical and structural safety, strengthening alternative proposals, and shortening the period of taking action based on inspection results</li> <li>• Sharing on the safety inspection results with the construction management department</li> </ul>
Taking disciplinary measures on subpar sites	<ul style="list-style-type: none"> <li>• Reporting on the safety environment of subpar sites during monthly meetings and disclosing them on the bulletin board</li> <li>• Issuing a letter of warning and conducting joint inspection among business divisions</li> </ul>
Offering mileage points for no disasters and individual rewards	<ul style="list-style-type: none"> <li>• Presenting prize money to individuals and sites for no on-site disasters through a mileage point system for no disasters by site and individual</li> </ul>
Managing the status of accidents	<ul style="list-style-type: none"> <li>• Managing the status of safety accidents</li> <li>• Minimizing the occurrence of safety accidents through continuous safety training and activities</li> </ul>



# Issue 3

## Response to Climate Change

### MATERIALITY OF THE SELECTED ISSUES

The construction industry per se is a low energy consuming one in GHG emissions, so its level of emissions is small compared to other industries. However, considering its relation with other industries, it has a high emission inducing coefficient, so GHG reduction activities are important. Since 2011, there has been a higher demand for disclosure of the related information and activities amid more stringent laws and regulations including the GHG and energy target management system that started in 2011, and the emission trading that began in 2015.

### APPROACHES TO THE ISSUES

- Establishing infrastructure for climate change response
- Strengthening GHG and energy management

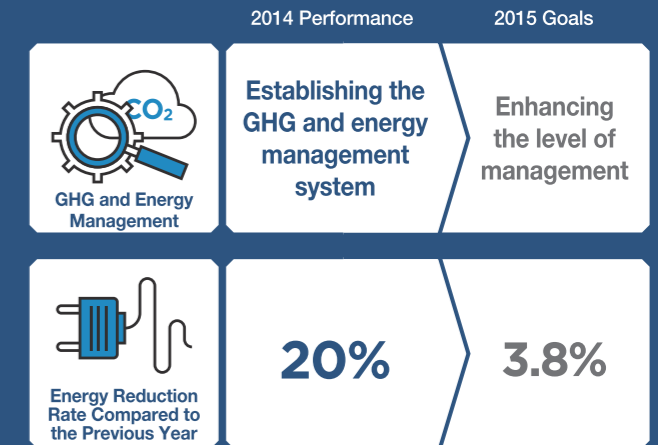
### RISKS

- A higher demand for information disclosure on environment-related corporate activities
- Obligations to reduce GHG levels as the GHG target management system has been implemented

### OPPORTUNITIES

- Raising corporate value and expanding business opportunities by acquiring various environment-related certifications
- Inducing cost reduction effects by reducing energy usage and GHG emissions

### MAJOR PERFORMANCE AND GOALS



### Establishing Infrastructure for climate Change Response

#### | Establishing the GHG and Energy Management System

According to Article 29 of the Enforcement Decree of the Basic Act on Low Carbon Green Growth, LOTTE E&C was designated as a company for GHG\* and energy target management. So, we have taken part in reducing GHG and energy based on management of the amount of energy usage, action plans and track records.

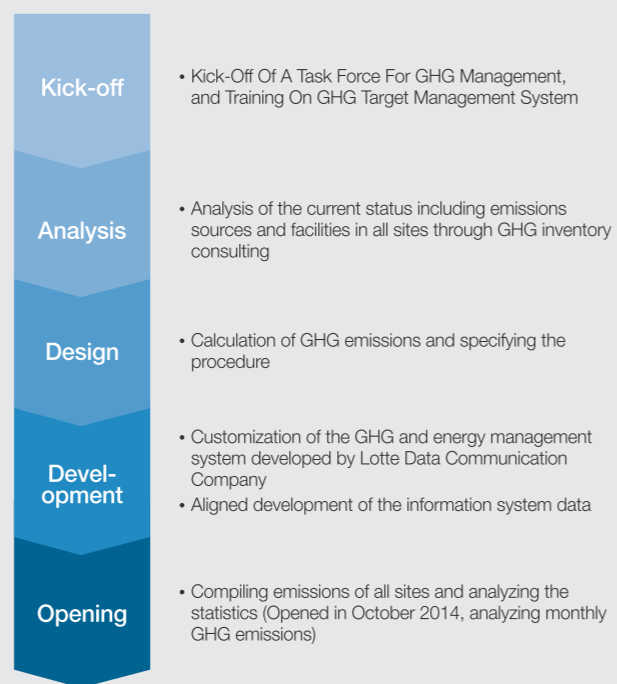
\*GHG: greenhouse gas

In 2014, in particular, we completed the setup of the 'GHG and energy management system' aligned with the corporate information system to make preemptive responses to GHG emission trading as well as to systematically manage GHG emissions and the amount of energy usage. This enables us to easily manage reliable data on GHG and energy emissions, and identify emission sources and facilities. We plan to extend support for GHG and energy management in the supply chain by identifying the organization of partners and the boundaries of their operation.

#### | Establishing the GHG Reduction Guideline

We produced and operate the 'GHG Reduction Guideline' to lower GHG emissions. Based on the guideline, we conduct activities such as promoting energy saving rules to raise interest among all employees on GHG reduction and enhance their environmental awareness.

Timeline for the Establishment of the GHG and Energy Management System



#### Expected Results

- Securing data reliability 
- Preemptive response to laws and regulations 
- Enhancing work efficiency by standardizing the work system for GHG management 
- Reducing cost for regular emission trading by establishing strategies to secure emission trading rights 

### Strengthening GHG and Energy Management

#### | On-site Energy Management

Due to the nature of the construction business, most of the energy usage is generated from sites where construction equipment is used. That is why we practice division-specific energy saving activities by reducing the amount of unnecessary energy usage on sites by setting energy reduction goals and measures to save energy.

In 2015, we plan to post the GHG emission status on the information system to manage sites with a high amount of GHG emissions, and conduct evaluation based on site-specific GHG emission reduction rate.



#### | GHG Emission Evaluation and an Integrated Certification System Setup

In order to cater to the national efforts to reduce GHG emissions, we have taken part in research to evaluate GHG emissions and to establish an integrated certification system.

It is a national policy research assignment with participation from seven institutions including Construction and Economy Research Institute of Korea and Korean Institute of Educational Environment organized by Hanyang University. Our role was to establish a database for GHG emissions for major materials based on the architecture of the building, utilizing our construction track records for various apartments, commercial facilities and high-rise buildings.

#### | Operating the lifecycle Environmental Load Evaluation System

We evaluate CO<sub>2</sub> emissions generated from the buildings' lifecycle through the LOTTE Carbon Assessment System (LOCAS), an evaluation system on environmental load throughout the buildings' lifecycle.

We use LOCAS as an indicator for eco-friendly performance, which was applied for Shindongbaeg LOTTE CASTLE Eco, Yongin, reducing GHG emissions by 20%.

This can be translated as a reduction of approximately 150,000 tons of CO<sub>2</sub> during the general apartment lifecycle of 40 years, which is almost equal to the formation of a forest worth half the size of the Yeouido. The LOCAS acquired an international patent (registration number in the U.S.: US 8,645,183 B2), having its excellence recognized worldwide.

#### | Adoption of the Clean Development Mechanism (CDM)

We adopted the CDM required by the United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol to reduce GHG, and acquired government approval. Lotte World Tower's PV and wind energy system was registered on December 30, 2013 at the UNFCCC.

Once our CDM project undergoes the review of UN CDM Executive Board and registration is confirmed completely, LOTTE E&C will secure CERs of about 18,353 tons for the next decade, which is similar to planting 2.04 million pine trees (as of those planted in 2010).



# Issue 4

## Establishing a Creative Corporate Culture

### MATERIALITY OF THE SELECTED ISSUES

A 'corporate culture' is the basis to determine employees' values, way of thinking and acts. It doesn't change easily but once established successfully, it serves as an exclusive core competency for a company. We unfold various activities to establish a creative corporate culture in the company level which will help us to leap higher as a global player.

### APPROACHES TO THE ISSUES

- Strengthening labor-management cooperation
- Facilitating a corporate culture

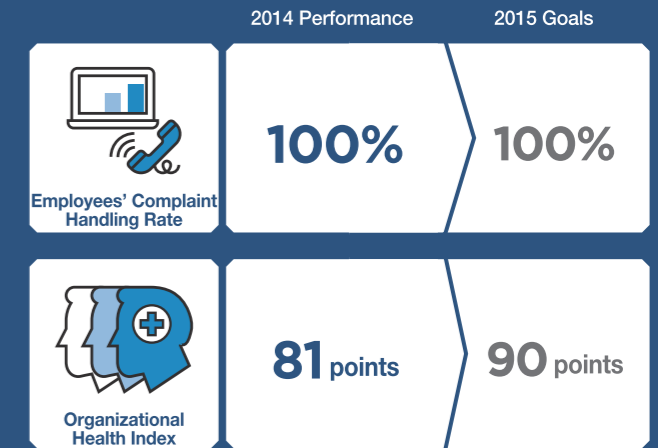
### RISKS

- Leakage of talented workforce and low morale among employees due to a rigid corporate culture
- Low efficiency due to a lack of communication

### OPPORTUNITIES

- Contribution to higher employee competency and value creation
- Generation of synergies based on free communication and collaboration

### MAJOR PERFORMANCE AND GOALS



### Strengthening Labor-Management Cooperation

#### | Operating the Labor-Management Council

Employees and the management seek for labor-management relations based on participation and cooperation respecting each role on equal footing. We organized the labor-management council with participation of five representatives from the employer side and five representative workers, on a regular basis to share critical agenda on employees' welfare, wage, health, safety and others, through which labor-management harmony is forged along with strong trust. Upon critical changes in management, the matters are immediately notified to employees.

#### Major Agenda for the 2014 Labor-Management Council

- Improving the wage system
- Strengthening on-site communication programs (adopting the 'Sites' Day' and 'Supporting Day for Completion of Construction')
- Operating a task force on labor-management culture
- Improving a selective welfare benefit scheme, etc.

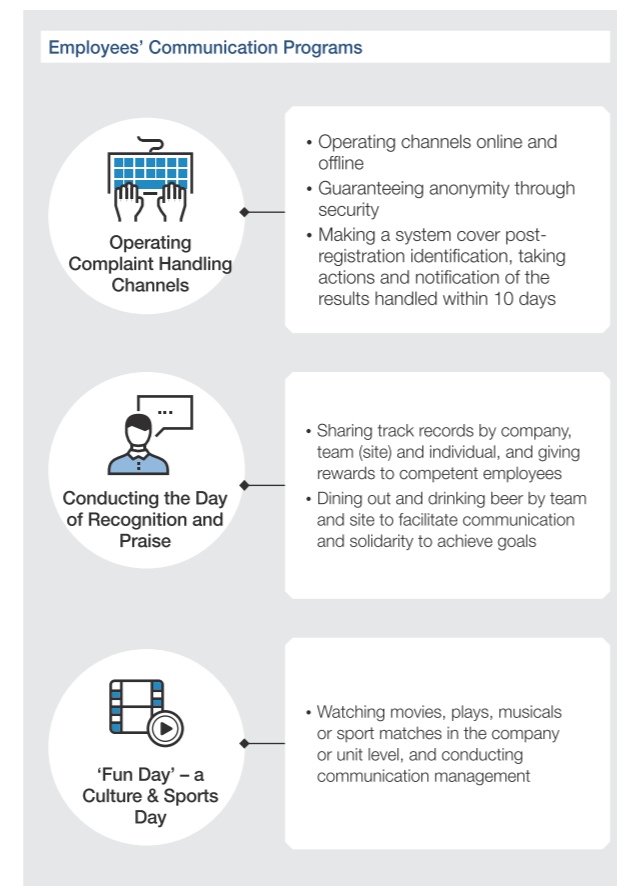
#### | Strengthening On-site Communication

We strengthened on-site communication to boost understanding on sites, listen to site-specific complaints and discussions, devise measures for improvement and encourage site workers in order to facilitate communication between the headquarters and sites.

We conduct safety-focused activities where executives and team leaders of the headquarters visit sites and conduct on-site safety inspection. On the Sites' Day, they listen to feedback and complaints on sites. On the Support for Completion of Construction, executives of the related division at the headquarters and assistant managers and above are divided into teams. They visit sites where completion is near, conduct a clean-up and build network with site employees.

#### | Various Communication Programs

We continuously carry on with the existing diverse communication activities besides strengthening of on-site communication in order to transparently share management activities and facilitate communication among employees.



### Facilitating a Corporate Culture

#### | Operating a Task Force for a New Culture

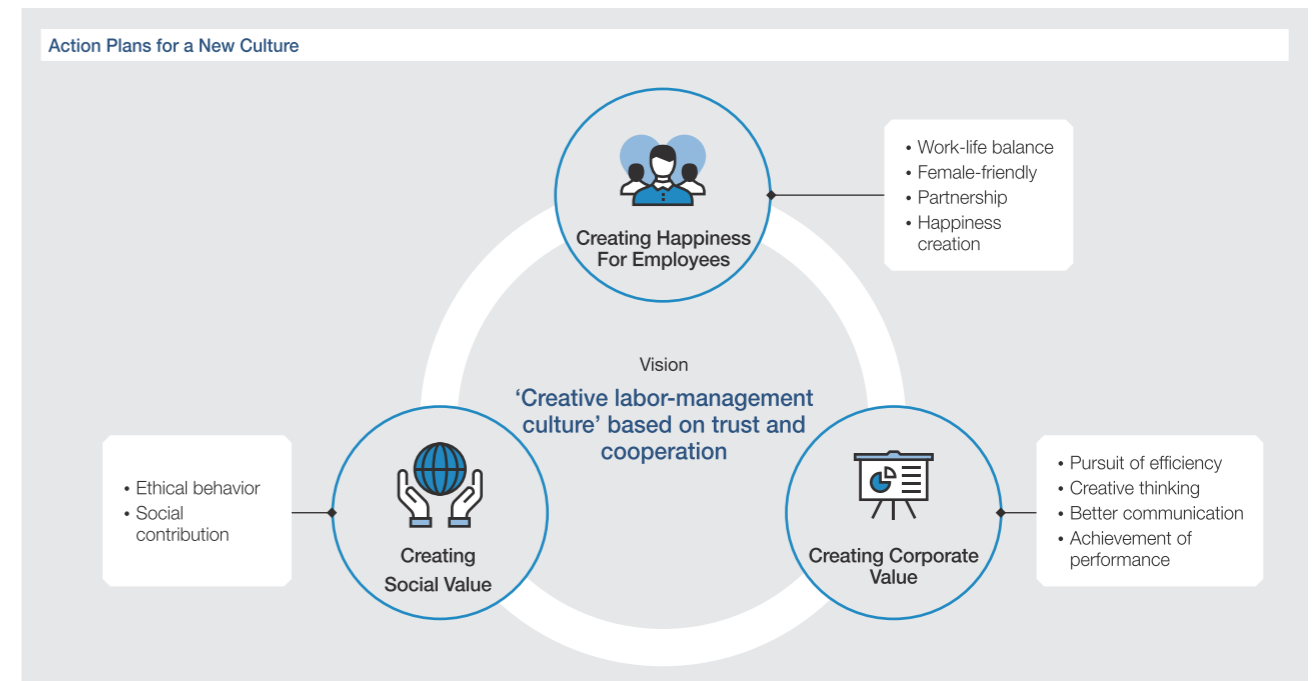
We operate a task force for a new culture to inspect a corporate culture and devise tasks for improvement. The task force consisting of four worker members and four employer members from the labor-management council establishes a roadmap for developing a corporate culture, and implements devised strategies and action plans.

We devised 18 action plans under the vision of 'creative labor-management culture' based on trust and cooperation and continue to unfold relevant activities.

#### | Diagnosing Organizational Effectiveness

We conduct company-wide diagnosis on organizational effectiveness to raise company-wide institutional and cultural effectiveness and contribute to business performance by using the results.

Diagnosis of organizational effectiveness consists of 'Engagement Index' and 'Organizational Health Index'. The 2014 results reveal that LOTTE E&C gained 77 points for 'Engagement Index' and 81 points for 'Organizational Health Index' (out of 100 points), ranking third among 37 affiliates in the Group. We will further intensify our basis for continued performance generation, and continue to complement and strengthen any of our shortcomings.





# Issue 5

## Creating Shared Value with Communities

### MATERIALITY OF THE SELECTED ISSUES

Social contribution activities have evolved toward 'Creating Shared Value (CSV)' where corporate profits and social value are created simultaneously by fully reflecting the nature of the business, going beyond mere donations. We communicate with communities by site and pursue shared value creation, considering the nature of the construction business with its nationwide presence based on communities.

### APPROACHES TO THE ISSUES

- Community-focused social contribution activities
- Expansion of the employee engagement



### RISKS

- One-time events or 'showing off' of social contribution activities being socially criticized
- Weakened corporate and brand image

### OPPORTUNITIES

- Establishing a positive corporate image
- Enhancing love for the company and satisfaction among employees through engagement in social contribution activities

### MAJOR PERFORMANCE AND GOALS

	2014 Performance	2015 Goals
 Operating Volunteering Teams	99 teams	120 teams
 Employees' Participation Rate in the Matching Grant	79%	82%

### Community-focused Social Contribution Activities

#### | The Campaign of 'Managing One Volunteering Team by One Site and by One Department'

LOTTE E&C carries out the campaign of 'managing one volunteering team by one site and by one department.' 99 volunteering teams were voluntarily formed at the headquarters and sites and conduct activities such as improving residential facilities, providing cultural experiences, and extending service-based volunteering for low-income people.

#### | Social contribution Activities Focusing on Overseas Sites

As overseas projects expand, we conduct activities such as improving the residential environment and establishing educational institutes by fully reflecting local needs mostly in China and Vietnam, our major overseas markets.

#### Volunteering Teams in Seoul



##### Major Activities

- Improving village facilities
- Visiting welfare facilities
- Donating talent and giving out daily goods, etc.

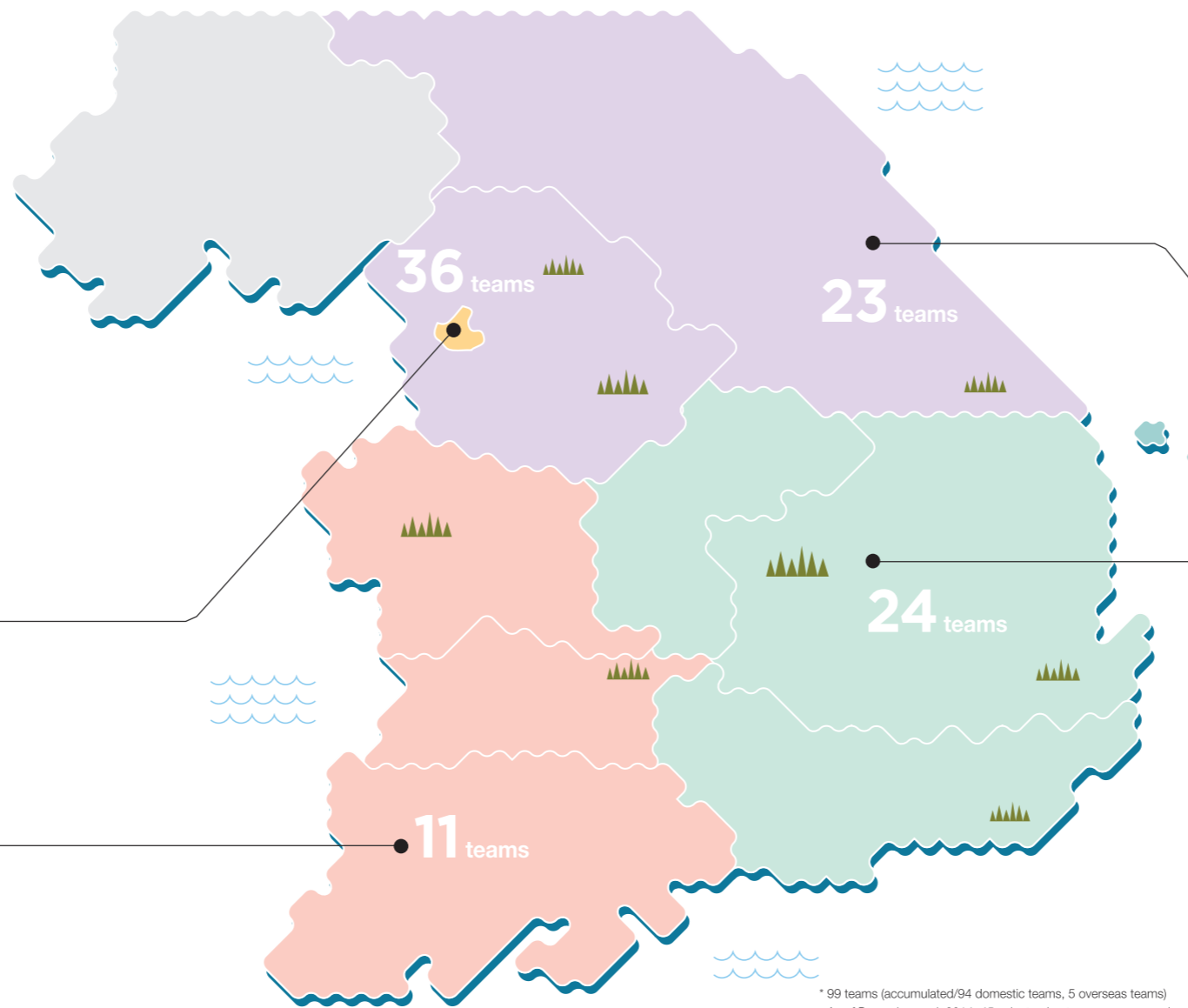
#### Volunteering Teams in Chungcheong and Honam



##### Major Activities

- Cleaning up the local environment
- Visiting welfare facilities
- Supporting the rehabilitation of the underprivileged in the regions, etc.

Activity Status of Volunteering Teams



\* 99 teams (accumulated/94 domestic teams, 5 overseas teams)  
As of December-end, 2014, 45 volunteering teams are engaged.

### Expansion of Employee Participation

#### | Matching Grant

The Matching Grant is up and running at LOTTE E&C to establish a culture of sharing within the company. It allows the company to extend donations in proportion to the funds raised voluntarily by the employees. The funds collected by each and every individual and the company in unity are used as the 'Fund for Love Sharing' for diverse social charity programs.

#### | Operating the Love-Sharing Volunteering Group

In order to encourage employees to engage in social contribution, we operate the company-wide Love-Sharing Volunteering Group. The volunteering group operating in the form of a club carries out recipient-oriented volunteering considering local conditions, which strengthens ties with communities.

#### Volunteering Teams in Gyeonggi and Gangwon



##### Major Activities

- Cleaning up the environment
- Visiting the underprivileged in the regions and practicing sharing with them
- Repairing houses, etc.

#### Volunteering Teams in Yeongnam



##### Major Activities

- Improving facilities for the underprivileged
- Cleaning up the local environment
- Serving free meals, etc.



# BUILD A GREAT VALUE

LOTTE E&C has continuously practiced sustainable management based on a belief that we should enhance social responsibility and execute our role towards achieving greater happiness for the future. We generate social and environmental values along with economic values in wide-ranging business fields as follows.

- 57 Environmental Management
- 60 Safety Management
- 62 Talent Management
- 66 Ethical Management
- 70 Customer Value Management
- 74 Win-Win Management
- 78 Social Sharing Management

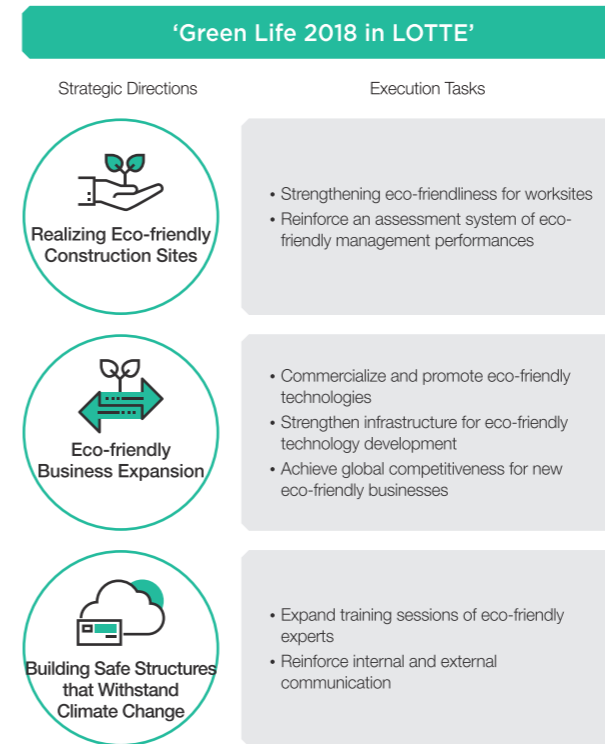
## Environmental Management



### Approaches to Environmental Management

LOTTE E&C is fully aware of the criticality of environment for corporate sustainable growth and eagerly implements environmental management. We conduct activities to achieve our vision of 'Green Life 2018 in LOTTE' based on three strategic directions for environmental management.

#### Visions and Strategies for Environmental Management



### Major Activities for Environmental Management

#### Organization and System Management for Environmental Management

##### Strengthening the Organization for Environmental Management

We operate the Environmental Management Subcommittee to implement strategic tasks for environmental management, and identify environmental trends and major relevant issues. The subcommittee's activities are varied and include development of environmental strategies, risk management, providing information, training and evaluation. It also enhances expertise in environmental management through collaboration with the HSE department, Design Research Institute and Technology Research Institute.

##### Improving the Environmental Management System

In order to manage the environmental impact and related risks pre-emptively, we operate the ISO 14001 Environmental Management Standard. In 2014, on-site monitoring was strengthened by identifying the adequate operating status for major facilities by adding photo registration functions on major processes that are implemented. We also run the autonomous risk inspection system to thoroughly manage post-inspection actions.

##### Managing the Environmental Management Roadmap

The environmental management of LOTTE E&C entered the 'growth stage for environmental management' in 2014. We developed eco-friendly techniques and products, responded to climate changes and established a system for GHG & energy management in an effort to secure eco-friendly technical leadership.

#### Environmental Management Roadmap

	Infant stage 2010~2012	Growth stage 2013~2015	Maturity stage 2016~2018
<b>Establishment of Eco-friendly Management System</b>	<ul style="list-style-type: none"> <li>Establish company-wide long-term green strategy</li> <li>Form a program to evaluate eco-friendly management achievements</li> </ul>	<ul style="list-style-type: none"> <li>Establish climate change pacts system</li> <li>Introduce and develop an environment performance evaluation system</li> <li>Establish and reinforce management standards for pollution causing materials</li> </ul>	<ul style="list-style-type: none"> <li>Establish a network (domestic and international) related to eco-friendly initiatives</li> </ul>
<b>Creation of Eco-friendly Business</b>	<ul style="list-style-type: none"> <li>Create a foundation for research on source technology for eco-friendly construction</li> <li>Commercialize and promote green home technology</li> <li>Conduct greenhouse gas value engineering using LCCO<sub>2</sub></li> </ul>	<ul style="list-style-type: none"> <li>Commercialize and supply green home facilities</li> <li>Expand the scope of new eco-friendly businesses                             <ul style="list-style-type: none"> <li>Nuclear power, water, new and renewable energy projects, etc.</li> </ul> </li> <li>Develop and apply eco-friendly construction techniques</li> </ul>	<ul style="list-style-type: none"> <li>Develop and commercialize the zero-carbon house</li> <li>Acquire global certifications for eco-friendly goods and services</li> <li>Achieve global competitiveness for new eco-friendly businesses</li> </ul>
<b>Establishment of foundation for Ecofriendly Management</b>	<ul style="list-style-type: none"> <li>Expand programs to train environmental professionals</li> <li>Improve the waste and water resource management systems</li> <li>Strengthen in-company communication and marketing</li> </ul>	<ul style="list-style-type: none"> <li>Publish sustainability reports</li> <li>Strengthen environmental contribution activities (Environment Day)</li> <li>Establish a GHG inventory</li> </ul>	<ul style="list-style-type: none"> <li>Continuously publish sustainability reports</li> <li>Complement infrastructures for each sector of eco-friendly management</li> </ul>



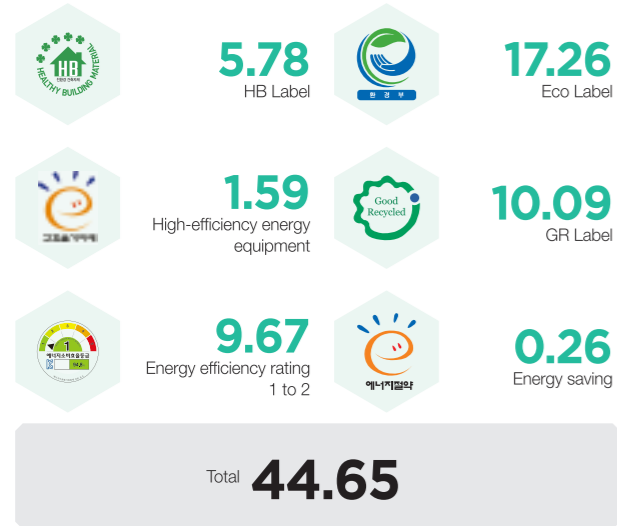
## Realizing Eco-friendly Construction Sites

### Eco-friendly Purchasing

LOTTE E&C is at the forefront of considering the visions for environmental management and fulfilling social responsibilities by procuring materials with eco-friendliness in mind throughout the entire cycle of design, construction and operation. In particular, we signed a voluntary pact for industry-wide "Green Purchasing", and try to continuously find suppliers with the same purpose. We also work towards and expand the list of materials for green purchasing through the green procurement system. The green procurement volume in 2014 stood at USD 44.65 million.

#### Performance of Green Procurement

(Unit: USD million)



### Eco-friendly Construction

#### Intensifying On-site Environmental Inspection

Regular and occasional inspection on a site environment is conducted for construction sites. In 2014, 88 inspections took place for 66 sites to check the status of separated waste storage and treatment and management of fly ash.

Results of the environmental inspection revealed that as for the number of discharges by pollutant, waste and air pollutants accounted for 272 cases (49.7%) and 187 cases (34.2%), respectively, taking up 85% of total inadequate outcome. Based on the results, we plan to focus more on waste and air quality management.

Improvements through 2015 Environmental Inspection	
• Strengthening sanctions imposed on sites with 'mid' and 'low' grades based on the evaluation scores → Phase 1: re-inspection (within one month) Phase 2: issuance of a letter of warning	
• Consulting new construction sites → conducting on-site service within seven days from the submission of a construction start notice	
• Clarifying roles for environmental management of partner companies on the document of site details	
• Conducting environment monitoring during construction and intensifying the operation of offsetting facilities	
• Extending site operation systems and training / inspection while replacing the heads of sites and construction team directors	

### Zero Violation of Environmental Regulations

We minimize the environmental impact during the construction process and strictly comply with environmental regulations. We manage and share data in our information system for the current states of rented buildings, and installed environmental facilities to prevent environmental incidents caused by violation of environmental regulations. Thanks to the development of in-house systems for legal compliance and continued internal measures, in 2014, there was no case of violation of environmental regulations beyond punitive fines.

### Environmental Training

Environmental training takes place for site supervisors and workers regarding on-site environmental management. Especially in 2014, we shared information on applicable regulations for each pollutant source and best practices in environmental management of other companies through training on consignment.

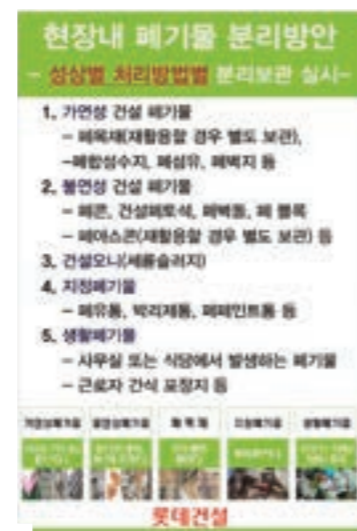
We also upgraded our environmental management level by acquiring expert's know-how practical skills for environmental management and management of civic complaints.

**Plans to Strengthen Environmental Training**

- Notifying sites belonging to the bottom 10% of the evaluation and expanding the training on consignment
- Providing training to support new sites and establishing a management process for them
- Integrating and revising environmental training materials by process and period
- Disseminating training materials suitable for the level of construction workers and inducing sites to provide autonomous training

### Launching Green Campaigns

We periodically launch campaigns to establish a company's green culture and enhance the awareness of environmental management. In 2014, the green campaigns focused on key issues by period by distributing banners and posters: making dust-free sites (March), thoroughly separating and collecting waste (July), GHG systems (September) and ban on illegal incineration (December).



Environmental Campaign Poster for July

## Operation of Eco-friendly Sites

### Waste Management

In order to efficiently manage building materials used for waste management and construction, we set and operate a guideline for waste recycling. We have expanded the usage of recycled aggregates by sharing cases on the quality management and recycling of recycled aggregates. We manage waste treatment performance record through an internal information system to reduce waste at construction sites.



Operating Site-specific Waste Storage Sites

### Management of Fly Ash

To reduce fly ash at construction sites, we perform various activities such as washing the wheels of transporting vehicles, watering unpaved roads, installing covers for open-storages, installing dust-free covers for materials in yards, operating road cleaning machines and other environmental improvement activities.

### Management of Water Resources

We have installed water pollution prevention facilities such as detritus tanks, silt protectors, and temporary waterways to minimize water pollution due to the discharge of effluent and waste water. Moreover, each construction site sets and analyzes reduction targets for water usage discovers areas to be complemented and initiates water saving activities. By efficiently treating water polluting materials, we will not only comply with legal standards but also proactively seek to prevent water pollution.

### Eco-friendly Demolition

We have complied with the operational standards stated in the related regulations to prevent asbestos from scattering during the demolition process. These include asbestos removal and protecting the health of local residents and construction workers. For the safety of on-site employees, we make it mandatory to wear a safety hat and uniform during asbestos treatment

## Eco-friendly Management

### Certification of Green Buildings

In order to obtain the Green Building Rating System of the Leadership in Energy & Environmental Design(LEED) - a certification standard for domestic green buildings and international eco-friendly buildings - materials and other resources, design, structure and functionalities of buildings are scrutinized and reviewed from the very beginning of the projects.

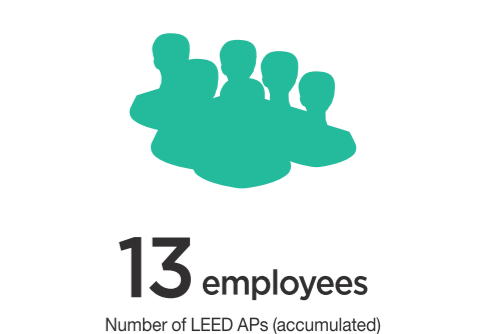
Type	Project Title	Level	Date
Housing	Housing redevelopment in the redevelopment promotion area of Gireum District No.3	Excellence in preliminary accreditation for green buildings	Feb. 21, 2013
	Yongin Shindongbaeg LOTTE CASTLE Eco (Block 1 & 2)	Excellence in the main accreditation for green buildings	Jul. 22, 2013
	LOTTE CASTLE Gold Park Block 3	Top excellence in preliminary accreditation for green buildings	Mar. 6, 2015
	Namyangju Jingeon District B-2BL	High grade in preliminary accreditation for green buildings	Apr. 3, 2015
	Housing redevelopment at Hyochang District 5	Excellence in preliminary accreditation for green buildings	Jun. 25, 2015
Buildings	Lotte Mart - Changwon Jungang Branch	Excellence in the main accreditation for green buildings	Feb. 25, 2011
	KT&G Seodaemun Tower	Excellence in the main accreditation for green buildings	Oct. 14, 2011
	Lotte Mall Gimpo Airport	Excellence in the main accreditation for green buildings	Nov. 14, 2011
	Lotte Shopping Town at Suwon Station	Excellence in the main accreditation for green buildings	Aug. 23, 2012
	Lotte World Mall	Excellence in the main accreditation for green buildings	Jun. 13, 2014

### Fostering LEED APs

To nurture the experts in environment friendly construction certificates, LOTTE E&C supports its employees to acquire the LEED AP certificate. As of 2014, a total of 13 employees are certified, and we will continue to foster LEED APs.

\*AP: Accredited Professional

## 2014 KEY PERFORMANCE





# Safety Management

## Strategies for Safety Management

Seeking to achieve 'Zero Severe Disasters', our vision for safety management, we established and operated execution tasks for each of the three strategic directions: 'Strengthening the Safety and Health Management System', 'Securing Organizational Competencies' and 'Spreading the Safety-oriented Culture.'

### Vision and Strategies for Safety Management

Zero Severe Disasters

<p>Strategic Directions</p> <div style="border: 1px solid #008080; border-radius: 50%; width: 60px; height: 60px; margin: 0 auto; display: flex; align-items: center; justify-content: center; margin-bottom: 10px;"> </div> <p style="font-size: 8px; text-align: center;">Strengthening the Safety and Health Management System</p>	<ul style="list-style-type: none"> <li>Training                     <ul style="list-style-type: none"> <li>- Training to raise the awareness of executives on safety management</li> <li>- Different training system by job type / rank</li> </ul> </li> <li>Differentiating inspection for a period of multiple disasters</li> <li>Conducting equipment safety check</li> </ul>
<div style="border: 1px solid #008080; border-radius: 50%; width: 60px; height: 60px; margin: 0 auto; display: flex; align-items: center; justify-content: center; margin-bottom: 10px;"> </div> <p style="font-size: 8px; text-align: center;">Securing Organizational Competencies</p>	<ul style="list-style-type: none"> <li>Systematizing personnel management                     <ul style="list-style-type: none"> <li>- Recruiting, developing and evaluating competent personnel and systematizing compensation</li> <li>- Developing overseas personnel for safety management</li> </ul> </li> </ul>
<div style="border: 1px solid #008080; border-radius: 50%; width: 60px; height: 60px; margin: 0 auto; display: flex; align-items: center; justify-content: center; margin-bottom: 10px;"> </div> <p style="font-size: 8px; text-align: center;">Spreading the Safety-oriented Culture</p>	<ul style="list-style-type: none"> <li>Implementing safety promotion programs                     <ul style="list-style-type: none"> <li>- Setting up a website for inspection status</li> <li>- Conducting self-diagnosis on safety awareness and launching pop-ups on key management issues by period</li> </ul> </li> <li>Operating the safety check unit led by the headquarters</li> </ul>

### Principle on Safety and Health Management

Principle on Safety and Health Management

- Employees and partner companies shall work together to reduce the rate of accidents to zero.
- To strive to develop a Safety and Health Management system leveraging continued innovation, and ensuring safety of workers.
- We vigorously comply with safety related regulations and rules, accept managerial reviews and opinions of stakeholders to integrate them to our business goals and act accordingly.
- To seek for systematic activities, e.g. establish, execute, review and revise safety management plans suitable for management with accountability of safety and health, for each business division
- We form a pleasant work environment with courtesy and consideration for each other, establish a culture of safety and health, and create values for sustainable management.

## Major Activities for Safety Management

### Strengthening the Competencies of Safety Managers

#### Reinforcing the Safety Unit

Whilst converting the headquarters-led safety unit into a department directly under the CEO to secure a culture for safety management, we enforced equipment-related personnel to enhance expertise of safety check on construction equipment. We also launched an exclusive safety management unit by business division to conduct safety management activities that are in line with the specifics of the headquarters.



### Safety Management System

We acquired KOSHA 18001 and OHSAS 18001, the certifications for the safety and health management system to enhance the company-wide safety and health levels. All employees participated to improve and identify the risks relating to safety and health. Risks are noticed beforehand and terminated by operating the risk evaluation system.

Moreover, any matters found to be inappropriate after inspected by safety guards and managers in charge of the business area are immediately addressed through the safety management system.



KOSHA 18001 Certificate (2014)



OHSAS 18001 Certificate (2014)

### Management of Safety and Health Committee

The Management of Safety and Health Committee is in place for sites where construction costs exceed a certain amount (that is, KRW 12 billion(approx. USD 11.39 million) and KRW 15 billion(approx. USD 14.23 million) for civil works).

The committee consisting of workers and users in the same number holds regular and ad-hoc meetings. It discusses on and shares an agenda to devise plans to prevent industrial accidents, health management for workers, training for employees etc.

### Enhancing Competencies of On-site Safety Managers

We provide an optimized working environment by selecting, educating, evaluating and compensating top-notch personnel in the construction industry in accordance with the process of managing safety personnel.

In 2014, we recruited specialists in high-rise buildings and equipment, and secured general technicians and many special technicians with over 10 years of experiences.

#### Four Stages of Personnel Management Process

Recruitment	<ul style="list-style-type: none"> <li>Search for candidates and company promotion</li> <li>Selection</li> <li>Deployment</li> </ul>
Development	<ul style="list-style-type: none"> <li>Education and training</li> <li>Adjustment of technician grades</li> <li>Management of qualification and special career</li> </ul>
Evaluation	<ul style="list-style-type: none"> <li>Evaluation of achievements</li> <li>Performance management</li> </ul>
Compensation	<ul style="list-style-type: none"> <li>Promotion and changing of job titles</li> <li>Incentives</li> <li>Welfare benefits</li> </ul>

### Fostering On-site Safety Managers Specialized for Overseas Operations

We develop a pool of overseas specialized candidates for overseas operations to reinforce competencies for safety management and safety awareness for overseas sites.

Programs are provided on various topics including developing capabilities to manage heterogeneous cultures through the social and cultural understanding of overseas sites, understanding the management of overseas units, and enhancing language skills.

### Conducting Safety Management Training

We conduct safety training to strengthen employees' competencies for safety management and safety awareness. In 2014, a total of 1,064 employees completed safety training courses. In 2015, we plan to launch and run courses on safety awareness for executives to spread the safety culture throughout the company.

Site Managers	Site management and safety management
Team Directors of Business Teams	Research on technical accident cases
Managers in Charge of the Business Areas	Improvement of capabilities to inspect risks by business
Heads of partner companies	Understanding of the safety and health management system among sites, heads, and roles of partner companies

### Safety Management Reflecting the Specifics of the Construction Industry

#### Establishing the Equipment Safety Management System

Safety management of equipment is especially critical because many operations on construction sites require heavy equipment, and technical defects of equipment and mistakes of workers would lead to safety accidents. Therefore, inspection is made mandatory prior to the import and during their usage. We have established an equipment safety management system to minimize accident risks, discover equipment risks in an initial stage, and remove potentially harmful causes.

In 2014, a total of 666 units of equipment were inspected on multiple areas including modification of major structures, identification of safety device failures, wear and tear of components, and areas of suspected modification. As a result of these endeavors, not a single case of equipment-related disasters took place in 2014.

Recruiting Equipment Specialists in the Headquarters

- Identifying the status of total equipment owned, conducting adequacy reviews on inspection results, approving of the usage
- Extending on-site support for installing and demolishing large equipment

Holding the seminars of CEOs in tower crane companies

- Sharing top three issues and coming up with counter measures for lack of expertise in personnel that import, install and demolish obsolete equipment, and for formality-oriented inspection without pragmatism

Activities to Strengthen Safety Management for Equipment

## 2014 KEY PERFORMANCE



0.11%

Disaster rate



666 units

Number of inspections on the imported equipment



1,064 persons

Number of individuals that completed safety training



# Talent Management



## Talent Management Approach

Talent management has become a prerequisite for sustainable management. Proactive competency development and a people-oriented corporate culture not only contributes to the enhancement of individual competencies and value, but also drives sustainable corporate growth.

LOTTE E&C's human resource management principle is to respect the creativity and autonomy of its employees and offer fair compensation based on performance. We endorse standards and protocol of international bodies and organizations on labor and human rights including the UN Universal Declaration of Human Rights and consider them as the basis for talent management.

### Vision and Strategies for Talent Management

'A global company which shares and dreams about hope'

#### Strategic Directions

#### Execution Tasks



Culture of Respecting Diversity

- Establishing policy governance for recruiting talent (female, talents that contribute to the national development, the physically challenged, etc.)



Harmony and Balance between Work and Life

- Reinforcing family-friendly management
- Conducting maternity protection activities



Social Responsibilities as a Global Company

- Boosting educational donation projects (educational donation programs for on-site experience)

## Major Activities for Talent Management

### Fair Recruitment of Talents

Employees are recruited based on four criteria namely, 'Fairness', 'Diversity', 'Suitability' and 'Rationality' and secures competent talent equipped with expertise and a global mindset.

#### Strategies for Talent Recruitment

Strategies for Implementation

<p><b>Coexistence of Diversity</b></p> <ul style="list-style-type: none"> <li>• Continuously intensifying open recruitment schemes</li> <li>• Reviewing feasibility in securing talent based on diversity</li> <li>• Adaptation of talent to the organization and environment after recruitment</li> </ul> <p>We seek for open recruitment to secure diversity of talents. We conduct a special recruitment channel for female military officers discharged from service and female talents from the science and engineering sectors to secure talents with soft yet strong female leadership qualities that are suitable for the construction sector.</p>
<p><b>Selection and Concentration</b></p> <ul style="list-style-type: none"> <li>• Continuing to recruit talent to enhance personnel competencies for vulnerable positions</li> <li>• Establishing measures to employ personnel and experienced employees for key positions and developing relevant strategies for talent management</li> <li>• Adopting plans to procure and foster R&amp;D workforce over the long term</li> </ul> <p>We have expanded the recruitment of specialists in R&amp;D, law, finance, design and technical sales to boost our competitiveness down the road and secure specialized talents.</p>
<p><b>Sharing and Accompaniment</b></p> <ul style="list-style-type: none"> <li>• Proactively engaging in the government's employment policies</li> <li>• Considering the socially underprivileged including female, local workforce, the physically challenged and people with low-income</li> <li>• Establishing a customized talent recruitment process in line with social needs</li> </ul> <p>We have additional job openings for the socially underprivileged and to strengthen socially responsible recruitment. We have increased the job positions and recruitment quota for the disabled in accordance with the special recruitment guidelines of LOTTE Group.</p>
<p><b>Expression of Individuality</b></p> <ul style="list-style-type: none"> <li>• Initiating changes in the hiring framework i.e., enhancing recruitment by searching for competent individuals on site</li> <li>• Securing top talent preemptively and proactively through diversifying the channels of recruitment</li> <li>• Improving and adopting talent screening schemes beyond stereotyped qualifications</li> </ul> <p>We select creative talents through idea competitions and strive for diversified recruitment and capability-oriented screening beyond stereotyped qualifications.</p>

## Strengthening Employees' Competencies

### Talent Development Roadmap

We operate the talent development roadmap to strengthen employees' competencies, considering talents as the basis for generating corporate values for the future.

The roadmap consists of Leader Capability Training, Training on Job Capability, Self-Development Training and Company-wide Training. Multi-layered training is offered for each job position in an effort to strengthen employees' competencies.

### Training of New Employees

LOTTE E&C is operating introductory training and a mentoring system for new employees to help them to adapt better to work and the corporate culture. We set Wednesday of the fourth week of every month as a mentoring day and provide work process training, in which a mentor and a new employee have one-to-one meetings, and on the job training.

### Securing Job Capabilities

Training is offered for job capabilities to foster competencies and qualifications required in each position. Job title-specific competency buildup programs are offered for employees to fulfill their roles within their unit amid the changes in their positions. Job training by technicians and division is provided to foster specialized technical workforce. As of 2014, 181 employees acquired engineering certificates (certified technicians, PMP and LEED AP, etc.).

### Academic Credit System

We support to enhance employees' competencies company-wide by operating an academic credit system. Courses consist of training in the Group and at company level. Job-related certificate courses and overseas training. Employees' competencies can be boosted through self-driven learning under the system.

It also enables employees to easily manage their history of training via 'My Training Records' by checking out the number of credits to be acquired in a given year, the credits carried on from the previous year and remaining credits to be completed.

### Talent Development Roadmap

Type	Level A (Assistant)	Level SA (Senior Assistant)	Level M (M1, M2)	Level S (S1, S2)	Executives	
Leader Capability Training	Led by the Group	Introduction Training for New Employees	Take-off Training for New Employees	Preparatory Course for Promotion Qualification Test	S-Grade Promotion Qualification Course · Mandatory Training for Grades	New Executive Course
					Work School Outside MBA Programs	EMBA in the Construction Sector
Leader Capability Training	Led by LOTTE E&C	Introduction Training for New Employees	SA Promotion Course	Preparatory Course for Promotion Qualification Test	Executive Capability Upgrade Course	
		Introduction Training for Seasoned Employees				
Work Capability Training	Professional Training Course	In-house Instructor Development Course				
		Intensive Global Course				
	Techniques	Practical Course on Overseas Construction Works				
		Expert Course on Contractual Claims				
Sales Management	Site Manager Capability Upgrading Course					
	Site Manager Development Course					
Self-Development Training	Division-Specific Work Training & Technician Training Course					
	Work-Specific Capability Upgrading Course					
	E-Learning Course					
Company-wide Training	Outsourced Training Course					
	Credit-based Course					
	Safety Management Course					
	Course on Selected Issues					
	Ethical Management Course					



### Leadership Development

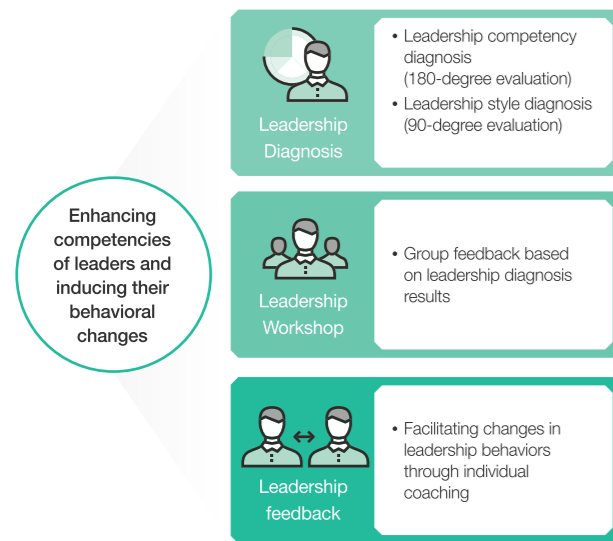
We conduct training for team directors, site managers, etc. the leaders who are crucial to the performance of their organizations. We have operated the S-Grade Promotion Qualification Course since 2013 for prospective candidates as future leaders. For the site managers we provide training more than once a year to enhance their competencies and develop their qualifications as corporate managers.

#### Introduction of the Leadership Diagnosis Program

Amid an increasing need for programs to systematically develop leaders, we have offered the Group-wide leadership diagnosis program since 2014.

Organizational growth and the growth of the leaders are boosted by diagnosing leaders' competencies and leadership styles for executives, team directors and managers wishing to have their leadership level diagnosed.

#### Leadership Diagnosis System



### Strengthening Global Competencies

We enable employees to do business seamlessly on overseas sites through our global competency buildup program as our overseas business is scaling up.

#### Intensive Course

We provide support for overseas employees to develop local language proficiency skills and adapt faster to their sites. In January 2015, 9 employees completed the Intensive Courses on Chinese. We have created a standard manual for office management for overseas offices and branches, and a specialized manual for Indonesia and Vietnam to help employees at home and abroad understand and utilize the content.

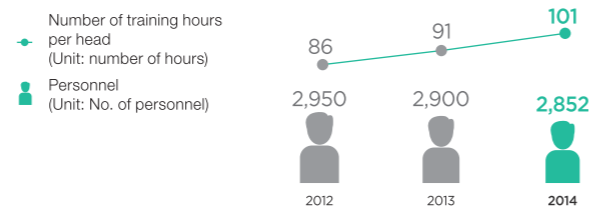
#### Improvement of Language Proficiency

A prerequisite for global talents is communication skills. That is why we operate the Global School program for our employees to learn Chinese and Vietnamese as well as having courses on strengthening presentation and negotiating skills. Support is also extended to enable their efficient communication by adding a course on meetings with overseas buyers.

#### Work Capability Enhancement Program

We offer the Federation Internationale Des Ingenieurs-Conseils (FIDIC) Course related to global jobs and Local Expert Course so that employees can gain local knowledge before advancing to a prospective country and adapt quickly to a new overseas environment.

#### Training Results



### BUSINESS CASE | Management of the Learning Group

Seeking to enhance internal technical competencies through technical competency sharing and knowledge buildup, we run the 'Plant Learning Group.'

It enables individual employees to systematically acquire knowledge and information on industries, techniques and management, and the Learning Group can generate synergies in business by possessing such knowledge and information as its own asset.

Topics to be learnt are selected based on job analysis and mentee competencies, and participants may propose topics on specific issues that might occur in consulting. A mentoring journal is written for each lesson, and all assignments are systematically managed and reflected in the job manual guideline and job guideline.

In 2014, 133 employees took part in the Learning Group.



Plant Learning Group

	For individuals	For the Learning Group
Expected Results	Enabling realignment and sharing of mentors' knowledge	Sharing and reinforcing internal technical competencies
	Fostering pragmatic job-oriented capabilities	Fostering the internal learning culture
	Expanding communication opportunities between mentors and mentees	Sharing learning materials of other teams / other processes

### Work-Life Balance

#### Family-Friendly Programs

We operate family-friendly program to create a work environment where all employees can happily work. Participating families can experience the history of LOTTE E&C for two days during the program and the love of their family members can deepen as they understand the company and take part in various activities.

Moreover, every Wednesday of each month is designated as the 'Day of Family Love' when employees leave work early and are supported to enjoy leisurely activities. Occasionally, cooking lessons with children are also held to promote family ties.

#### Female-Friendly Work Environment

We have conducted diverse maternity protection programs in tandem with the government's policy on the low birth rate and a need to enhance the work environment for female employees.

We made maternity leave for a year mandatory followed by a period of leave before and during childbirth. We also conducted activities for maternity protection, such as online education, providing information for reinstatement and an offer for congratulatory gifts for childbirth. Furthermore, we facilitated a mandatory family-care leave system as well as a request to reduce working hours during childcare.

In March 2015, we opened 'LOTTE E&C Daycare Center', an in-house nursery near the headquarters to ease the childcare burden for female employees. The daycare center runs customized age-specific programs in consideration of children's growth development in a secure and eco-friendly environment.



Opened LOTTE E&C Daycare Center

### Fair Performance Evaluation & Reward

#### Performance Evaluation & Reward

Rational compensation is provided in line with fair performance evaluation. We are using various evaluation methods, such as performance evaluation, capacity evaluation, and core value evaluation, based on which rational levels of performance-oriented rewards are given to motivate and boost morale for employees.

#### Welfare Benefits

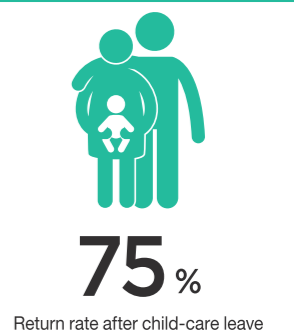
We run diverse welfare benefits to enable employees to work in a happy and decent work environment. Various benefits include insurance coverage for four major insurances, maternity protection, and support for stable housing and livelihood, medical and healthcare service and leisurely life.

We have also adopted the wage peak system in accordance with the Employee Retirement Benefit Security Act. We have extended the retirement age from 55 to 60 starting from 2015.

#### Welfare Benefits

- Support for leisure activities**
  - Refresh Vacations
  - Operation of the Day of Family Love / Clubs' Day
  - Offering of gifts for birthday and wedding anniversary, etc.
- Maternal and Maternity Protection**
  - Maternity leave post childbirth
  - Cash extension post childbirth
- Stable Housing and Livelihood**
  - Housing loan
  - Tuition subsidies
  - Cash gifts for congratulations and condolences
- Medical Fees and Health Checkup**
  - Payment of employees' medical checkup fees and medical fees and insurance premiums
- Statutory Welfare Benefits**
  - Subscription to Social Insurance (For Compulsory Insurances)
- Selective Welfare Benefits**
  - Offering of individual welfare benefits using a welfare card
- Others (Type)**
  - Financial support for the employer's liability insurance and family insurance for employees in overseas branches
  - Accreditation and reward for employees' long-term service
  - Retirement Preparation Program (running an online website and office)
  - Retirement age extension and wage peak system

### 2014 KEY PERFORMANCE





# Ethical Management



## Ethical Management Approach

Recognizing that legal compliance in a country with our corporate presence is a prerequisite for a sustainable company, we have reinforced ethical management as a corporate citizen. LOTTE Group's code of conduct and detailed guidelines are taught and disseminated among all employees. Executives are at the forefront of practicing ethical management proactively to form a culture of leading by example.

In order to establish 'creation of an ethical company based on principle and trust' for the vision of ethical management activities and achieve it, we have carried out activities based on three strategic directions.

### Vision and Strategies for Ethical Management

#### 'Creation of an ethical company based on principle and trust'

Strategic Directions	Execution Tasks
 <p><b>Getting Ready to Enhance the Ethical Management System</b></p>	<ul style="list-style-type: none"> <li>Strengthening infrastructure for ethical management (code of actions, business units)</li> <li>Regularly conducting diagnosis for ethical management levels (LOTTEX)</li> </ul>
 <p><b>Internalization of Employees' Ethical Consciousness</b></p>	<ul style="list-style-type: none"> <li>Expanding the program to improve awareness of ethical management</li> <li>Checking the actions for ethical management</li> </ul>
 <p><b>Vitalization of an Ethical Communication Policy</b></p>	<ul style="list-style-type: none"> <li>Disseminating ethical management to partners (diagnosis, training)</li> <li>Facilitating the operation of reporting channels</li> </ul>

## Major Activities for Ethical Management

### Strengthening Ethical Management in Line with LOTTE Group's Code of Conduct

#### Establishing and Spreading LOTTE Employees' Code of Conduct

LOTTE Group adopted LOTTE's Code of Ethics in October 2000, and established LOTTE Employees' Code of Conduct as an upgraded version in 2014. The code of conduct consists of 'trust among LOTTE families', 'trust with customers', 'trust with partners' and 'trust with the society.'

LOTTE E&C provided training on LOTTE Employees' Code of Conduct to all employees, and conducted training for local employees in overseas offices and branches through heads of branches and subsidiaries.

#### Intensifying LOTTE E&C's Ethical Management Units

Ethical management is managed in two channels via the Ethics Secretariat and the Audit Team. The Ethics Secretariat conducts preventive activities such as dispersing and providing training on the principles of ethical management, while the Audit Team oversees and ensures that employees comply with them.

Each unit is made up of diversified members from different job positions for more professional conduct. Especially in the Audit Team, most of the members are in the supervisor level and above and are experienced in working on sites to enable more pragmatic audit.

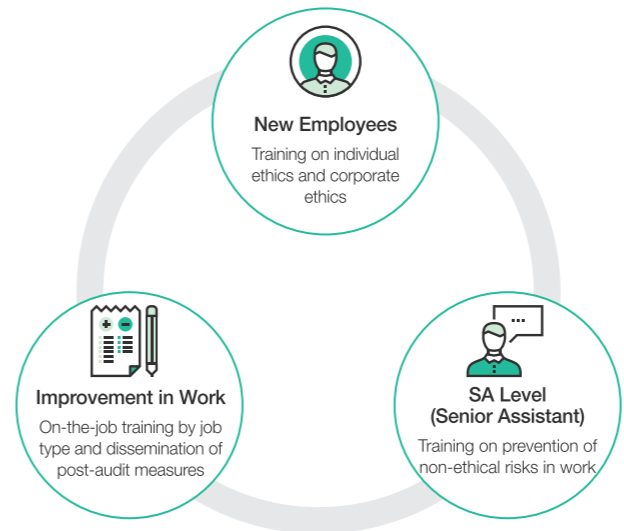
### Major Activities



## Employees' Regular Ethical Awareness Training and Audit

### Ethical Management Training by Target

Diverse ethical management programs are in place, catering to employees' jobs and job position. Training by the Audit Team targets employees in the headquarters and local sites, intensifying the effectiveness of training.



Training on improvement in work

### Diagnosis of Ethical Management

LOTTE E&C diagnoses the level of ethical management using the Lotte Ethics Index (LOTTEX), and sets channels for stakeholder communication, paving the way for corporate sustainable growth.

LOTTEX consists of two parts: 'basic ethic' on compliance with the legal system and ethical responsibilities through appropriate and transparent corporate management; and 'social ethics' on promotion of management in which companies, stakeholders, and future generations can achieve growth together based on economic, environmental, and social responsibilities.

In 2014, the score on basic ethics was 81 while that of social ethics was 79, which totaled the total ethics score of 80.

### Self-Check Program on Ethics

LOTTE E&C operates the self-check program on ethics to inform the importance of ethical management to employees and to enable individuals to better incorporate ethical management.

#### Self-Check Program on Ethics



#### Ways to Raise Participation Rate

- Automatic pop-ups when logging in the company's IT system
- Training for employees with a low participation rate upon department / on-site audit
- Plans in place to induce proactive participation by periodically disclosing the participation rate by department and site

## BUSINESS CASE | Expansion of the Ethical Management Practice Day

We have expanded the self-ethical check that used to be held twice a month into the company-wide check. A survey is developed on five areas including headquarters business, domestic and global sites and overseas branches / subsidiaries, and ethical risk diagnosis and ethical training are conducted under the stewardship of a unit head once a month.

Diagnosis results are reflected in selecting and evaluating competent teams on ethical management. Teams selected as competent ones are given rewards to enhance employees' ethical awareness and encourage their ethical practices.

In order to encourage higher participation, training will be conducted for employees with a low participation rate upon department and on-site audit, whose participating rate is to be periodically disclosed.

Expected Results
Strengthening awareness on unethical acts in consideration of the nature of each team's jobs
Managing unethical risks on overseas sites and branches, local subsidiaries and dispatched personnel
Discovering ethical weaknesses of the company through feedback statistics
Responding to external risks on individual and organizational unethical acts
Inducing preventive audit based on points raised in the previous audit and a list of diagnosis items with cases attached



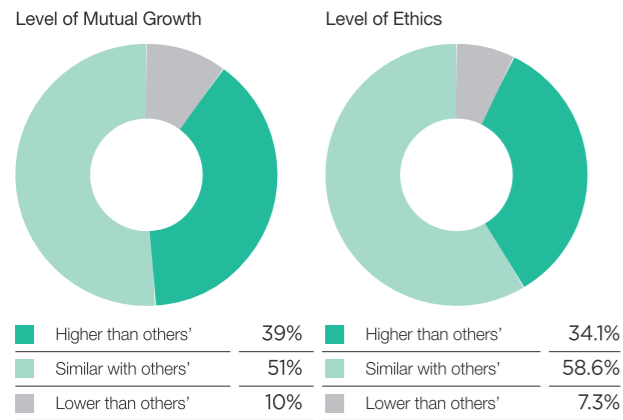
## System Alignment and Communication for Partnerships in the Supply Chain

### Strengthening Ethical Management Activities in the Supply Chain

#### Diagnosis of Ethical Levels for Partners

Ethical management levels of our 50 major partners for each major business area are diagnosed to disseminate mutual growth and actions for ethical management. The consists of unfair special contracts, mutual growth, bidding and contracts and unethical acts, and answers are to be registered anonymously at the Cyber Ombudsman of LOTTE E&C. In 2014, over 90% responded in the ethical management diagnosis as follows, "LOTTE E&C's mutual growth and ethical levels are similar or higher than other companies." This reaffirmed partners' positive recognition of our ethical management activities.

#### Results of Ethical Level Diagnosis by Partners



#### Ethics Pledge of Partners

As the roles of the supply chain increase in corporate management, we operate the 'Ethical Agreement Writing Program' to enhance partners' ethical awareness and settle an ethical management culture. It eradicates unethical management activities of partners as they fill in the ethical agreement with their willingness to practice ethical management and also contributes to the growth of a fair corporate eco-system.

#### Ethical Training for Partners

We conduct ethical training to strengthen the ethical awareness of partners. In 2014, we conducted training on ethical management, labor, safety and various regulations for 92 major partners. The quality and reliability training was enhanced by inviting external lecturers with expertise from the Construction Association of Korea, Fair Trade Commission, Korea Occupational Safety and Health Agency and Construction & Economy Research Institute of Korea.



Ethical Management Training for Partners

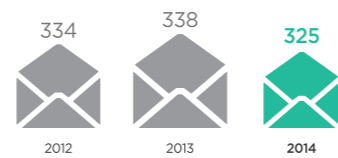
### Management of Reporting Channels

LOTTE E&C runs the Cyber Ombudsman to gather feedback of internal and external stakeholders and to manage unethical corporate behavior. We maintain a lead time of less than 10 days on average to disclose the results. Special audit takes place on certain agenda to strengthen feedback for the results of resolved cases.

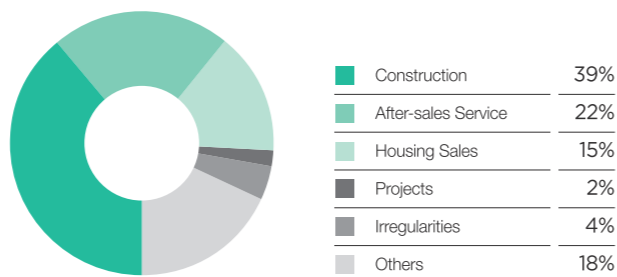
Based on fair audit on cases reported to the Ombudsman, we prevent malicious reporting and enhance the reliability of reported cases. Moreover, we also run online channels including the customer service center on the website and email services, along with offline channels including phone, fax, mail and off-line visits for the convenience of the case reporters.

#### Cases Reported to the Ombudsman

(Unit: number of cases)



#### Type of Reported Cases



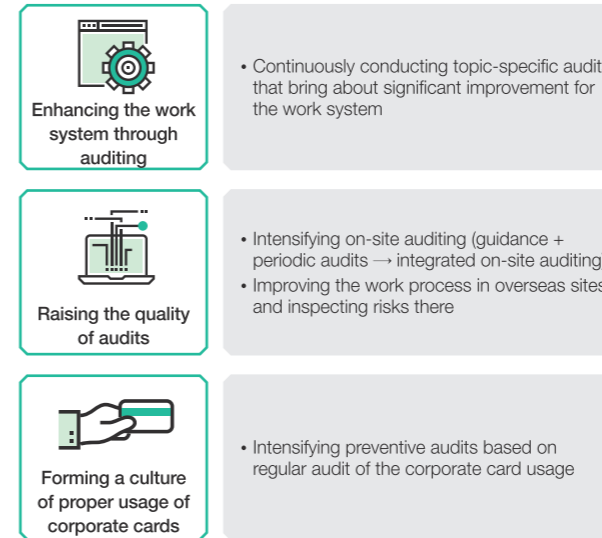
## Strengthening Audits

### Auditing

We have enhanced internal audits for fair and ethical management activities. In 2014, we conducted regular, topic-specific and special audits aligning the headquarters and sites.

This led to improved systems and auditing quality, and raised the ethical awareness of employees.

#### Key Auditing Results



## Future Directions

In order to pursue "creation of an ethical company based on principle and trust", we plan to initiate activities by setting directions, that is, "preparing to enhance the system for ethical management", and "incorporating ethical awareness among employees."

### Prescribing a Specific Guideline for the Code of Actions

We plan to prescribe a specific guideline for 'LOTTE Employees' Code of Conduct documented in 2014.

We expect to devise a specialized action guideline for the construction industry by upgrading the existing ethical norms, and disseminate the code of conduct to all employees through training and promotion.

### Online Training on Ethical Management

We plan to conduct online training to disseminate the code of conduct for all employees. We will prevent any risks on external stakes by proactively reflecting improved stakeholder relations including partner and customer relationships in training.

### Practicing Ethical Management Internally and Externally

Seeking to prevent unethical acts, we will strengthen the operation of the Ombudsman and ethical monitoring for overseas sites so that employees can practice ethical behavior in their daily work.

We will also facilitate communication with external stakeholders including customers and partners by improving communication and hot-line.

## 2014 KEY PERFORMANCE





# Customer Value Management



## Approach to Customer Value Management

We can only achieve continued growth when we offer differentiated values to customers and they recognize those values.

Each business unit enhances the customer value throughout the project execution stages, and strengthens the quality of construction and the service by operating a Exclusive CS unit for housing and architecture business areas.

### Vision and Strategies for Customer Value Management

#### Providing Customer Satisfaction and Better Values for Customers with the Best Products and Services



## Major Activities for Customer Value Management

### Strengthening Competitiveness in Quality

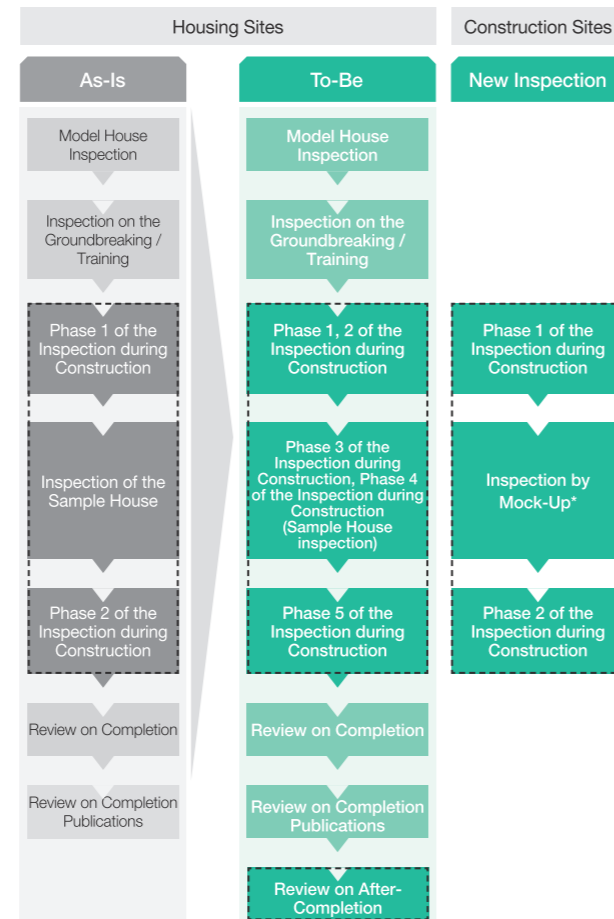
#### Strengthening the Organization

We strengthen CS activities especially for housing and architecture projects. We have established a one-stop inspection system by increasing the number of architectural engineers within the CS Department.

#### Enhancing the Quality Inspection

We strengthened intensive inspection on major defects in each phase of construction. Quality inspection and fast service have been intensified befitting each period by dividing the management period into two: residency management period for two months before and after the completion, and the management period two months after completion.

### Quality Inspection Process



\* Mock-Up Inspection: actual model-used inspection

### Improving the Training on Quality

We strengthened the training on quality to maximize customer satisfaction. In 2014, we complemented various training systems including the training on disseminating cases of improvement and failure for construction on major sites, specialized training on law and special lectures with invited specialists for each construction area. The number of trainings conducted went up from 10 to 15.

Architects in the Architecture Division were for training and on-site employees were invited as lecturers to enhance the effectiveness of the training.

**Key Points in the Training on Quality**

- Training on major defects major construction areas
- Dissemination of cases of improvement and failure on major sites
- Lectures of invited specialists on prevention of major defects
- Lectures from research institutes on defects in civil works

### Strengthening Sharing and Disseminating of Cases

We identify cases on defects that occurred in actual settings, and share on-site feedback on cases and the cases reflected on sites. As a result, we recommend the actual utilization in work beyond sharing of information on defects.

<p><b>Intensifying the Discovery of Cases on Defects</b></p>	<ul style="list-style-type: none"> <li>Finding major civic complaint cases using residency-related data</li> <li>Prior inspection on tenants/residency completion reports</li> <li>Detecting cases of excellence and setback in inspecting the on-site quality</li> </ul>
<p><b>Disseminating the Cases on Defects</b></p>	<ul style="list-style-type: none"> <li>Devising improvement measures for major defects and disseminating cases</li> <li>Coming up with improvement measures based on consultation with related departments</li> <li>Spreading cases on critical/chronic defects and gaining feedback</li> </ul>
<p><b>Disseminating Monthly / Yearly Cases on Defects</b></p>	<ul style="list-style-type: none"> <li>Gathering monthly business-specific defects and disseminating areas for improvement</li> <li>Archiving data on defects collected throughout the year, publishing a booklet on it and distributing it to site</li> </ul>
<p><b>Strengthening Feedback on Cases</b></p>	<ul style="list-style-type: none"> <li>Gaining feedback on training on defect cases</li> <li>Submitting ideas and applied cases by site</li> <li>Reflecting excellent cases where improvement has been made upon site evaluation</li> </ul>

### Implementing Special Inspection

We conduct special inspection on incoming panels, elevators, old dead trees and the status of their removal by strengthening post-construction inspection. This ensures quality management to boost reliability.

#### Inspecting Incoming Panels

We inspect incoming panels that measure thermal imaging to prevent incidents of transformer deterioration and damage resulting from overloading. Inspection takes place once a year for three years on the extra high voltage panels, TR panels, low voltage panels, MCCB panels and other distribution panels.

\* Power distribution system: an electric power system to receive electric power from power plants and distribute it

\* Distribution board: a system to re-distribute the electricity received from the power distribution system

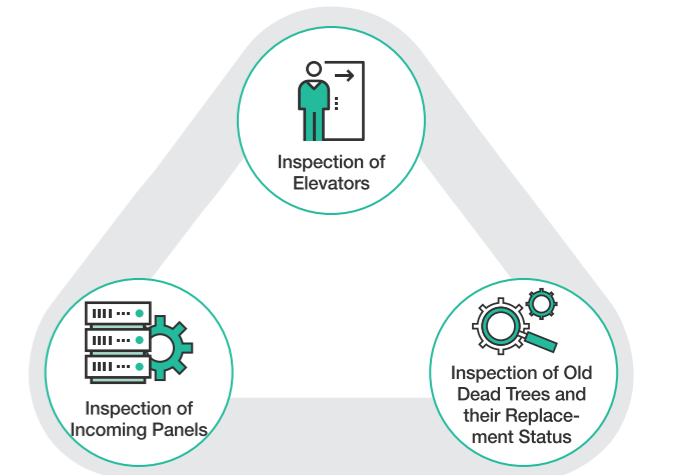
#### Inspecting Elevators

In order to prevent elevator-related accidents including passenger fall and trap, we inspect on operations of emergency stop and call devices resulting from brake contact problem and emergency lighting operation once a year for three years.

#### Inspecting Old Dead Trees and their Status

We inspect old dead trees and their removal status, non / erroneous construction and defects in public space twice a year for two years after construction.

### Expected Results



<p><b>Inspection of Incoming Panels</b></p> <ul style="list-style-type: none"> <li>Ensuring prompt maintenance and minimizing the post cost burden by inspecting the thermal imaging measurement every year</li> <li>Enhancing the corporate image by shutting off power outage accidents resulting from deterioration and damage of transformers and contact areas</li> </ul>	<p><b>Inspection of Elevators</b></p> <ul style="list-style-type: none"> <li>Ensuring prompt maintenance and minimizing the post cost burden by inspecting the thermal imaging measurement every year</li> <li>Enhancing the corporate image by preventing such accidents as passenger fall and trap</li> </ul>	<p><b>Inspection of Old Dead Trees and their Replacement Status</b></p> <ul style="list-style-type: none"> <li>Raising residents' satisfaction driven by timely management, removal and / or replacement of old dead trees</li> <li>Taking prompt action and updating database by inspecting defects of public space at the same time</li> </ul>
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## Enhancing Customer Satisfaction

### Facilitating Customer Communication

We operate various communication channels to preemptively identify customer needs and immediately respond to customer complaints.

#### Castle Manager

We developed the 'Castle Manager', a smartphone app to increase customer conveniences and provide functions such as remote inspection of the utilities usage rates, identification of visitors upon absence and blocking of external gas valves. We plan to offer diverse information by setting up a mobile website.

We operate a mobile customer satisfaction system- a specialized service of LOTTE E&C- to provide the services ranging from viewing of the list of registered on-site A/S requests to the specific search of on-site A/S requests.

#### Magazine 'In CASTLE's app

We publish the mobile application magazine 'In CASTLE' containing high-quality content including interior information and LOTTE CASTLE's convenient facility outline to cater to diverse customer needs.



### Strengthening CS Training

We raise our competences to respond to customers through training on service mindset. All employees in the C/S take part in the training, and service coaching is provided by inviting external special instructors. CS training is periodically conducted for partners so that multi-faceted responses are put in place depending on customers' tendency.

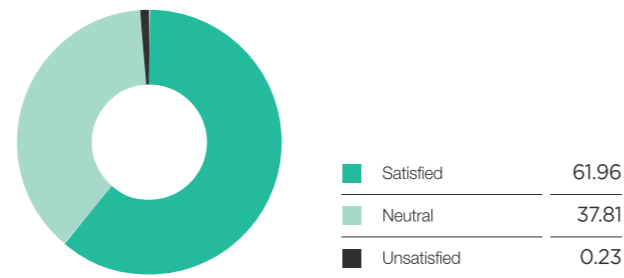
### Protecting Customer Information

LOTTE E&C abides by statutory laws on the protection of customer information including the Personal Information Protection Act and the Act on Promotion of Information and Communications Network Utilization and Information Protection, etc. We do our utmost to protect customers' rights by establishing measures on handling personal information by devising internal management plans pursuant to relevant laws. We do our best to take technical and managerial protection measures for customer information by appointing executives and supervisors in charge of protecting personal information. We have established a corporate system to enable immediate measures on the occurrence of personal information leakage. As a result of such endeavors, not a single leakage of customer information occurred in 2014.

### Management of the Happy Call Service

We gather data on customers' satisfaction with the after-sales service and customer complaints through the Happy Call Service, and utilize them as feedback information for improving customer satisfaction. The Happy Call Service is provided for every case of after-sales services registered. The call records are entered into the database and managed systematically in order to prevent similar inconveniences and complaints from recurring.

Level of Satisfaction on Happy Call (Unit: %)



### BUSINESS CASE | Improvement of the Defect Treatment Alert Service

We improved the defect treatment alert service as a way to strengthen corporate competitiveness down the road. We provide high-quality after-sales service based on mobile solutions by setting up a service to send text messages in each stage of defects within the defect treatment process. The number of building and rooms, and the content regarding the defects are generated in SMS. It is possible to check the transmission status, and manage the logs for the transmission, through which defect treatment plans, progress and follow-up status can be checked out.

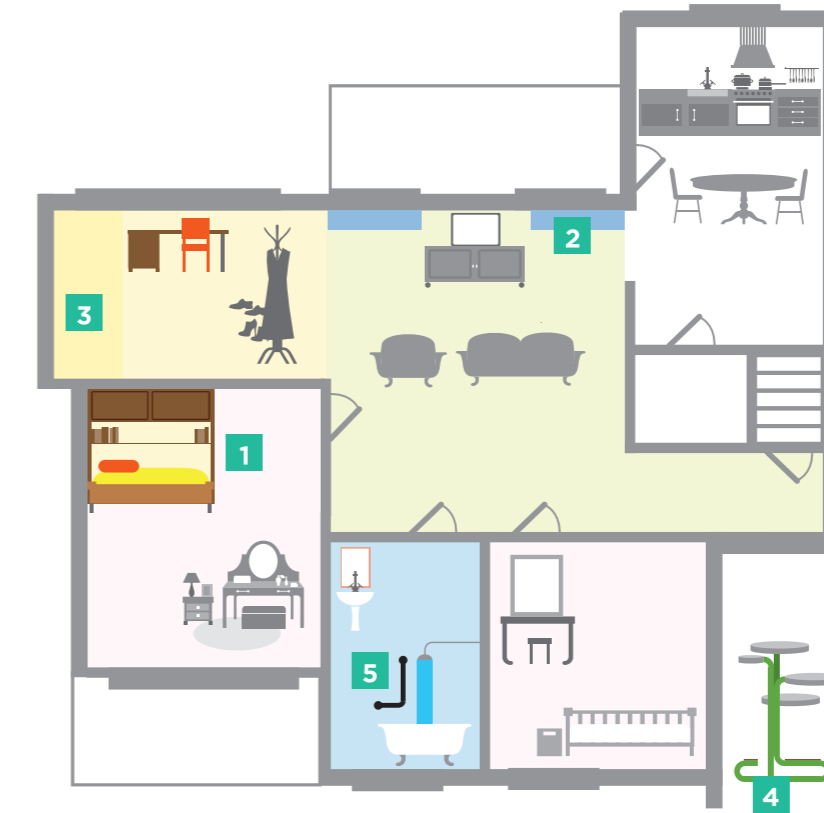
#### Expected Results

- Minimizing customer complaints
- Enhancing the brand loyalty by forging strong relations with customers

Process Stage	Key Activities
Occurrence of defects	<ul style="list-style-type: none"> <li>Inquiries on defects (website / call center / phone)</li> </ul>
Registration of defects	<ul style="list-style-type: none"> <li>Classifying and registering defects</li> <li>Sending SMS on the acceptance of the defect registration</li> </ul>
Defect inspection	<ul style="list-style-type: none"> <li>Devising the inspection schedule and visiting the site</li> <li>Sending SMS on the visit for defect inspection</li> </ul>
Happy Call	<ul style="list-style-type: none"> <li>Happy Call (Call Center)</li> <li>① Completing the service</li> <li>② Identifying the satisfaction level</li> </ul>
Visit for Treatment	<ul style="list-style-type: none"> <li>Visiting for defect treatment and sending SMS</li> </ul>
Treatment Schedule	<ul style="list-style-type: none"> <li>Defect Handling Scheduling</li> <li>Notifying a relevant service provider and devising the treatment schedule</li> <li>Sending SMS on the schedule for defect treatment</li> </ul>

## Customer-Oriented Design

We select keywords for housing trends for a given year on a yearly basis, and enhance customer value by proactively reflecting them on design and product development in line with customer needs.



### Efficient Saving of Space

**1 Study Bed**  
In today's world where single households are rapidly increasing as a social change, we developed the 'Study Bed' that can be used as a space for storage as well as a desk in ordinary times and as a bed for sleeping by modifying it to be utilized in a narrow space.

### Customized Life Styling

**2 Dream Linewall**  
We developed the Art Wall for users to create a living space with a unique ambience and filed for patent on it at home and abroad. This enables residents to decorate their living room to befit their lifestyle as well as their taste.

### Dream Alpha Room

**3 Dream Alpha Room**  
We developed the Dream Alpha Room for customers to utilize a part of their living room as the space they want or a customized space. Such options as 'He's dream' (a study type), 'She's dream' (a dress room), 'Kid's dream' (a kids' room) are available for different customer needs.

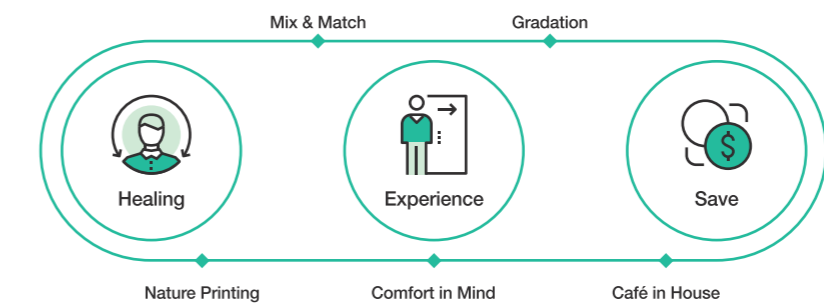
### Living Smart

**4 Smart Tree**  
In order for customers to use cutting-edge devices without spatial constraints, we operate the Smart Tree outside their apartment. PV panels are used to supply electricity and recharge wireless Internet service mobile phones and laptops.

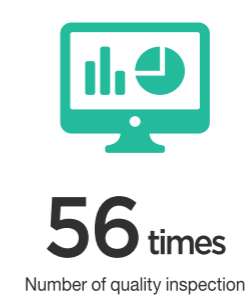
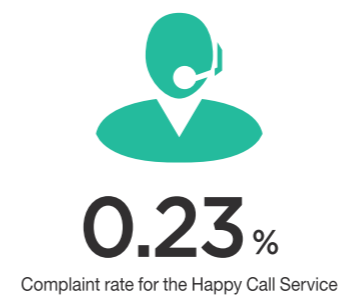
### Maximized Safety

**5 Safety Package**  
We developed and applied the Safety Package for the safety of children and the elderly. Door frames and furniture corners are made in curved and circular shapes to prevent any wounds for infants and kids, and door frames are attached with a shock absorption device on the top. A storage space with a low mirror and a safety bar are installed on the wall of a bathroom.

### 2014 Housing Trends



## 2014 KEY PERFORMANCE





# Win-Win Management



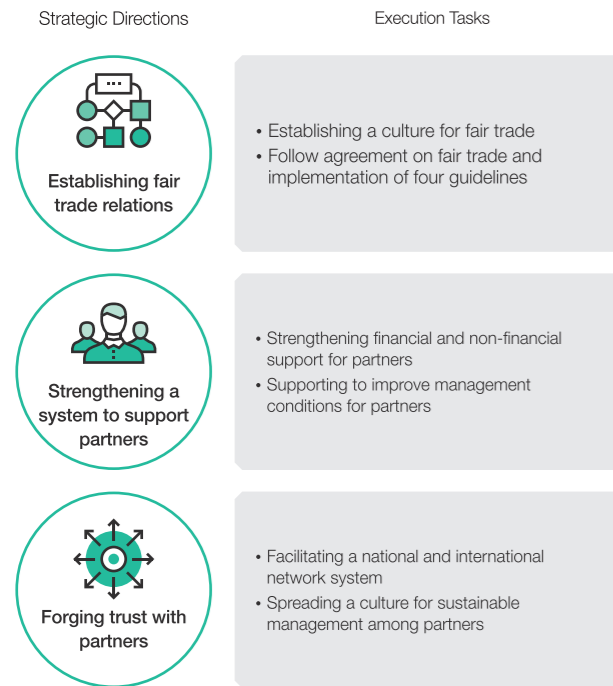
## Approach to Win-Win Management

LOTTE E&C is creating a win-win culture where the scope of corporate competitions is perceived to cover the supply chain including partners, and growth can be achieved based on fair trade with them.

To this end, we set a vision for win-win management: "To be a leading company for mutual growth based on fair trade and interaction." Accordingly, we set three strategic directions to 'establish a fair trade system', 'strengthen a support system for partners' and 'build trust with partners', and proactively implement execution tasks.

### Vision and Strategies for Win-Win Management

**"To be a leading company for mutual growth based on fair trade and interaction"**



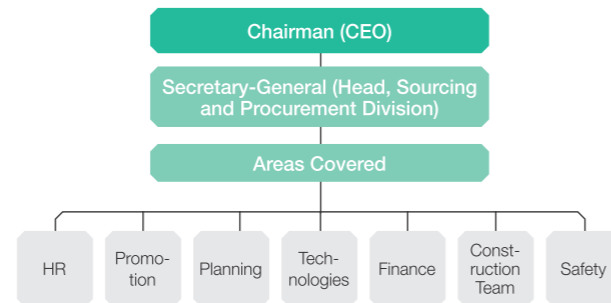
## Major Activities for Win-Win Management

### Strengthening the System to Execute Mutual Growth

#### Operating the Integrated Unit for Mutual Growth

We run the Mutual Growth Promotion Secretariat. Since 2011, it has initiated five tasks which include financial support, training support, technical support, expansion of exchanges, and establishment of a fair culture. We manage the Procurement Planning Team as an exclusive unit responsible for mutual growth for training and support for partners.

#### Secretariat for Mutual Growth



### Devising the Standard for Executive Evaluation on Mutual Growth

Since 2011, we have reflected track records of procurement executives on their evaluation items as we strengthen our driving force for mutual growth. Evaluation items consist of integrity in complying with the terms and regulations of the agreement.

Efforts have been intensified for mutual growth in the Group level. In the evaluation items for the Group's affiliates, LOTTE Group established a standard for evaluating mutual growth, and reflects affiliates' track records on mutual growth according to the standard for evaluating affiliates. LOTTE E&C responds to the evaluation in full swing.

### Notification System for Information on Consignment

We notify consignment information including new construction sites' with partners in advance via the portal website created for partners to share relevant information.

Partners can check information including the amount of subcontract, construction period and location of sites via partners' portal (<http://partner.lottenc.com>). We provide conveniences to enable thorough review prior to signing consignment agreements

## Establishing a Fair Trade Order

### Establishing a Fair Culture

LOTTE E&C has implemented four guidelines and operates them with integrity for the establishment of fair subcontract transaction orders between large and small companies. This helps to forge a fair and horizontal partnership with partners.

**Establishing a Fair Culture**

- Adopting and operating the Agreement Signing Guideline
- Adopting and operating the Partner Selection and Operation Guideline
- Adopting and operating the Internal Deliberation Committee Guideline on Subcontracting
- Adopting and operating the Guideline on Issuance in Writing and Preservation
- Adopting and operating the Standard Subcontract Agreement

### Improving Awareness of Mutual Growth among Employees

In order to improve awareness of mutual growth among employees and spread a culture of growing together, we conduct autonomous monitoring, employee training and regular meetings. We also launch mutual growth campaigns to raise awareness of the topic.

#### Improving Awareness of Mutual Growth among Employees

<p><b>Autonomous Monitoring</b></p>	<ul style="list-style-type: none"> <li>Monitoring subcontracting requirements and status of practicing mutual growth</li> <li>Monitoring regulatory changes and violation cases on bidding</li> </ul>
<p><b>Training on Subcontracting Laws</b></p>	<ul style="list-style-type: none"> <li>Training on subcontracting for employees to establish a fair culture and minimize disputes on subcontracting</li> <li>Conducting an on-site lecture circuit by external specialists and executives / employees</li> </ul>
<p><b>Regular Meetings on Mutual Growth</b></p>	<ul style="list-style-type: none"> <li>Organizing regular meetings attended by construction team directors of major units and business divisions to check the status quo</li> <li>Sharing ideas, complaints and proposals for improvement of sites</li> <li>Reflecting suggested agenda in policies for mutual growth</li> </ul>

## Enhancing Risk Management for Partnerships

### Fair Partner Selection Process

We notify the partner registration and management standard on the website and the partners' portal to raise transparency and fairness in selecting and managing partners.

We set up the 'Fair Bidding Management System', a monitoring system on the status on the bidding entry of partners, to give fair trading opportunities to partners.

**Fair Bidding Management System**

- Indicating approval of the number of participants in bidding in the previous year and / or this year to give fair opportunities upon consultation on bidding
- Managing the fair bidding management system
- Monitoring the status of participation in bidding by process in real time
- Managing the system to automatically recommend partners for bidding

### Occasional Evaluation of Partners

Regular evaluation is conducted by the relevant site and the headquarters once a year in January, while occasional evaluation takes place every month to prevent problems from occurring.

Incentives for competent partners include the extension of contracting opportunities, exemption & reduction of the performance bond policy, and reward and financial support, thereby maintaining a trust-based partnership.

### Regular Risk Management for Partners

In order to manage beforehand the partner-related risks such as partners' work overload, payment delays, collusions and bankruptcies, we implement various risk management activities including tighter management of contract securities, introduction of the payment delay prevention system, insolvent company trade rate monitoring and credit rating monitoring.

## BUSINESS CASE | Setting Up the Delayed Payment Prevention System for Partners

We introduced the delayed payment prevention system for partners to manage complaints beforehand resulting from non-payment of proceeds, while preventing payment-related accidents of partners. This helps to secure the reliability of materials for proving the payment records, and monitoring the payment delay status by site and partner in real time in order to prevent partners' delays in payment.

<p><b>Preventing Accidents</b></p>	<ul style="list-style-type: none"> <li>Preventing payment accidents beforehand</li> <li>Preventing complaints resulting from non-payment(delayed payment)</li> <li>Reducing cost and personnel for solving construction delays and non-payment, etc.</li> </ul>	<p><b>Implementing Convenient Payment Management Functions</b></p>	<ul style="list-style-type: none"> <li>Simplifying document writing and reporting</li> <li>Minimizing tasks on claim and transfer</li> <li>Effectively managing payment delays and non-paying partners through real-time monitoring</li> </ul>
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## Diversifying Efforts for Win-Win Cooperation for Partners

### Fund Support

#### Financial Support

We provide various types of financial support including, direct, mixed, indirect and special ones to enable stable growth of partners.

#### Financial Support



#### Improvement in Conditions of Subcontract Payment

LOTTE E&C receives payments in 100% cash from partners to improve the cash flow, and strives to upgrade the ratio of cash payment steadily. We also support partners' smooth financial flow by ensuring payment within 10 days.

#### Reasonable Adjustment of the Delivery Unit Cost

We comply with the standard for adjustment of the delivery unit cost on standard subcontract agreements. We also establish the adjustment standards to offer more favorable conditions for partners, which are indicated in the fair trade and mutual growth agreements and subcontract agreements.

## Training and Support for Strengthening Competencies

### LOTTE Mutual Growth Academy

We fully utilize the LOTTE Mutual Growth Academy, an educational & training institution for partners in the Group level, in order to provide systematic and professional training for partners.

In 2014, we provided seminars on the economic and management outlook and leadership by inviting 7 CEOs of partners. We also conducted a competency buildup training camp for 91 intermediate-level managers to enhance their job skills. Moreover, about 400 online courses are available on construction practices, languages and self-development for employees of suppliers.

### Providing Management Consulting Services

In order to diagnose the management status of partners and improve their productivity, we provided financial consulting aligned with professional accountants from credit rating agencies. LOTTE E&C covered the total expense for consulting. Advisory consultation was also offered to improve management weaknesses of partners by engaging in the Management Doctor program organized by the Large and Small Business Cooperation Center of the Federation of Korean Industries.

**Management Doctor Program**

- Paving the way for medium-and long-term growth of partners through consulting from advisory members with abundant on-site experiences on six area including management strategies & techniques / production / quality, marketing & HR / labor & fund / finance and sales channel expansion

**Consulting Activity**

- Finding areas for improvement and setbacks in corporate management with specialized consulting programs for financial items in partners to raise credit ratings by improving the cost ratio and financial structure, and inducing stronger competencies in taxation / accounting / finance

### Support for Sales Expansion

We contribute to the sales expansion of partners by jointly developing new products with partners and applying them to the sites of LOTTE CASTLE. In 2014, LOTTE E&C participated in purchasing seminars organized by the Small and Medium Business Administration and the Corporate Partnership Foundation, introducing the management scheme for partners and conducted guidance on partner recruitment plans and registration procedures. As such, we provided opportunities for partners to explore new sales channels.

## Expansion of Exchanges

We listen to complaints of partners based on regular exchanges with partners and share ideas with them. We strive to communicate with them through diverse channels.

### The CEO's Site Visits

The CEO of LOTTE E&C seeks for ways for mutual development by listening to complaints of the partners and visits sites in person. He takes various feedbacks from the sites to proactively discuss and reflect them on corporate management. In 2014, he visited two sites, those are Gwangmyeong Outlet and Deoksugung LOTTE CASTLE, and listened to feedback from partners' employees working on the sites.



LOTTE E&C CEO's Site Visit

### Domestic Training For Partners

LOTTE E&C shares a culture for mutual growth through 'LOTTE Partners', a gathering of partners. We conducted special training inviting external instructors and also held training in Korea for the CEOs taking part in 'LOTTE Partners'. We also held CEO seminars, seeking for directions for mutual development.



Training in Korea for Partners

## Technical Support

We conduct joint development of construction techniques, support for patent filing and implement the performance sharing system for partners to upgrade their technical competitiveness and secure growth engines.

### Joint R&D

We proactively support partners' technological development to strengthen their competitiveness. During 2014, we supported 24 cases including new technologies on construction and development of new products, which included four cases for joint new technology registration and 20 cases for filing of new design registration.

### Performance Sharing System

We adopted the performance sharing system for the first time as a Korean construction company and paid rewards for sharing performance with partners, thus suggesting new directions for mutual growth. We have maintained the corporate accreditation for the performance sharing system since 2012 when we signed the agreement to spread the system in partnership with the Ministry of Knowledge Economy. In 2014, we achieved 39 cases including 21 cases for new assignments registered and 18 cases for the completion of the issuance of assignment certificates.

## Status of Major Partners

We have forged partnership ties with 3,050 partners as of 2014-end, among which 116 companies are new partners. Most partners are outsourcing companies in architecture, civil works, etc. that support construction and procurement partners that supply equipment. Stronger competitiveness of partners boosts our competitiveness, so we recognize partnering companies as the partners that enhance our competitiveness and values and grow together with us.

**Types of Partners**

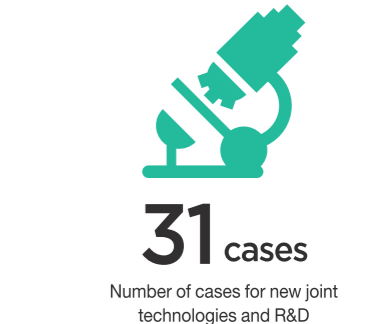
**Outsourcing Partners**

- Businesses holding statutory licenses on construction including the Basic Act on the Construction Industry
- Supporting construction in such fields as architecture, civil engineering, machinery, electricity and service, etc.

**Procurement Partners**

- Businesses that hold licenses in construction and environment or those that can supply related items
- Supplying equipment on architecture, civil works, machinery and electricity and plant equipment

## 2014 KEY PERFORMANCE





# Social Sharing Management



## Approach to Sharing Management

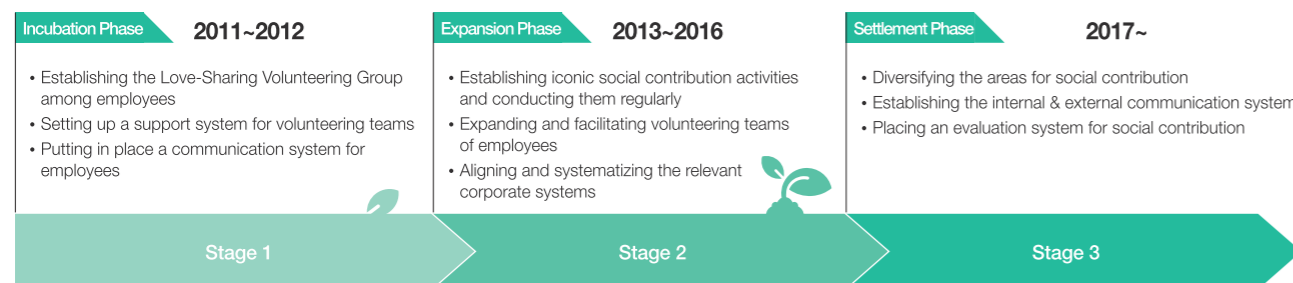
We select items for social contribution activities to utilize the expertise of our human resources and our strengths as a construction company, and conduct community-focused activities based on our sites and communities.

In particular, in order to achieve the vision of sharing management, 'a love sharing company that grows with communities', we set strategic directions such as 'establishing representative social contribution projects', 'facilitating site-oriented volunteering groups', and 'paving the way for social contribution.' Accordingly, we implement execution tasks aligned to these goals.

### Vision for Sharing Management



### Roadmap for Social Contribution



## Major Sharing Management Activities

### Clarifying Social Contribution Principles and Organizing Units

#### Principles for Social Contribution

LOTTE E&C's principles for social contribution include 'Returning Profits to Society' through the completion of corporate social responsibilities and 'voluntary participation', which is driven by a strong passion of employees.

#### Organizing Units for Social Contribution

LOTTE E&C manages the Social Contribution Committee under the Sustainability Council. The committee sets social contribution strategies, manages the operation of the Love-Sharing Volunteering Group, a corporate volunteering team, establishes and implements plans on special projects for social contribution, and raises funds. As such, it serves as a control tower for company-wide social contribution activities.

#### Roadmap for Social Contribution

We conduct activities based on the 'Social Contribution Roadmap' to sustain long-term and systematic social contribution activities. In 2014, we facilitated the management of the 'Love Sharing' website that builds consensus on social contribution among employees and serves as a bridge of communication to expand the volunteering groups among employees, while regularly managing major social contribution programs in conjunction with our business.

## Major Social Contribution Activities

### Love House of Dreams and Hopes

Activities of the Love House of Dreams and Hopes are to support repair and maintenance of social welfare centers and housings of the underprivileged. In 2014, 54 employees donated their talent for local welfare childcare centers and senior citizen centers for the elderly welfare in Seoul and Busan, supporting facility improvement and donating goods.

In April 2015, the CEO of LOTTE E&C took part in a project to improve the facility of a welfare childcare center and to contribute daily necessities. It was a memorable time for us as we could deepen the genuineness of social contribution activities.

### Love-sharing and Family Adding Program

LOTTE E&C's Love-sharing and Family Love Adding Program is held every year with the participation of employees and their families by signing a sisterhood relationship with the National Memorial Board on June 24, 2014.

In 2014, 105 employees and their family members laid wreaths in the cemetery and conducted charity work, practicing social sharing and forming a family-friendly corporate culture. Moreover, we help employees' children learn and feel gratitude about the devotion of patriots in the history of Korea as they pay homage to the war dead and participate in field trips.

### Briquette of Love-Sharing Activity

The 'Briquette of Love-Sharing' activity has been carried out since 2012 as a key social contribution program. In 2014, the CEO and 138 employees gave out 40,000 pieces of briquettes by visiting the underprivileged in Seoul and Busan.



Briquette of Love-Sharing Activity



Love-sharing and Family Adding Program

## BUSINESS CASE | Expansion of the Educational Donation Program

We operate our educational donation program to cheer for the dreams and passion of youths as the leaders of the future and contribute to the development of future talents. We fully utilize the major buildings of LOTTE E&C, knowledge of employees and our expertise in the construction sector for youths to passionately seek for career paths in multiple areas.

In 2014, we conducted job training programs in the construction business for career counseling teachers and held the Happiness Fair on Educational Donation participated by parents.



### Major Activities in 2014

<p>Training Programs for Career Counseling Teachers</p>	<ul style="list-style-type: none"> <li>Timeline: 1<sup>st</sup> and 2<sup>nd</sup> half of 2014 (6 times in total)</li> <li>Venue: Site of Lotte World Tower</li> <li>Targets: 118 teachers</li> <li>Content: Introduction of LOTTE E&amp;C and the site of Lotte World Tower</li> <li>Introducing major jobs in the construction field</li> <li>Preparing for implementation of construction jobs</li> </ul>
<p>Participating in Korea's Happiness Fair on Educational Donation</p>	<ul style="list-style-type: none"> <li>Timeline: September 20-21, 2014 (Saturday and Sunday)</li> <li>Venue: KINTEX, Ilsan</li> <li>Targets: Youths and parents</li> <li>Content: Introduction of the construction business</li> <li>Making high-rise buildings using paper</li> </ul>



### Plans for Social Contribution

LOTTE E&C strives to fulfill social responsibilities as a corporate citizen by performing social contribution activities continuously, and by growing along with communities.

In 2015, we plan to further establish a system for social contribution and strengthen the basis for it.

#### 2015 Social Contribution System



### Facilitating Social Contribution

#### Initiating Key Social Contribution Programs and Exploring New Ones

We will continuously initiate key social contribution programs to secure continuity of the activities. Moreover, we will expand social contribution activities to practice sharing with communities along with stakeholders such as customers and partners

### Expanding the Basis for Social Contribution

#### Expanding Domestic and Global Activities of Employee Volunteering Teams

By 2015, we expect to increase the volunteering teams from 99 to 120 to extend the basis for social contribution activities. We also plan to facilitate their participation by encouraging volunteering teams in new sites at home and abroad, by continuous management of the teams.

#### Encouraging Employees to Participate in the Matching Grant

In order to secure stable resources for the charity fund, we plan to introduce the Matching Grant program when recruiting new and experienced employees and post as pop-up on our information system. We also plan to encourage employees to take part in the program by sending an official letter so that 82% of the total (2,200 employees) can participate by 2015.

### Setting the Regular Schedule for Social Contribution

We plan to set the regular schedule for social contribution for employees to incorporate the volunteering mindset, post it in the intranet and share it with employees.

#### 2015 Work Schedule for Social Contribution

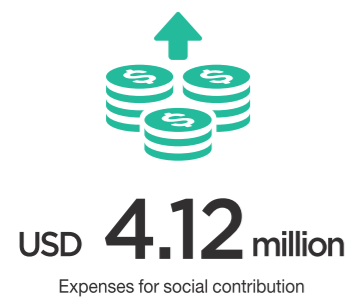
Apr 16	May 30	September	October	November
Love House of Dreams and Hopes - Geumcheon-gu, Seoul	Love-sharing and Family Adding Program (1 <sup>st</sup> half of the year) - National Memorial Board	2015 Love-sharing and Family Adding Program (2 <sup>nd</sup> half of the year) - National Memorial Board	Love House of Dreams and Hopes - Dong-gu, Busan	Briquette of Love-Sharing Activity - In Seoul (104 Village) - In Busan (Maechukji Village)

### Performance of Social Contribution Activities

LOTTE E&C returns corporate competencies and resources to the society and shares values with communities.

In 2014, the amount of expenses for social contribution amounted to about USD 4.12 million, and 99 employee volunteering teams consisting of 1,609 employees spent 7,779 hours for social contribution activities.

## 2014 KEY PERFORMANCE



\* A Close Look at LOTTE E&C's Value Creation Activities with Community Engagement (54-55p)

# BUILD A GREAT FUTURE

LOTTE E&C has generated social and environmental values along with economic values in wide-ranging business fields based on a belief that we should enhance social responsibilities and perform our roles in achieving a greater happiness for the future.

- 82 Sustainable Corporate Governance
- 83 Advanced Risk Management
- 84 Securing Technology Leadership



# Sustainable Corporate Governance

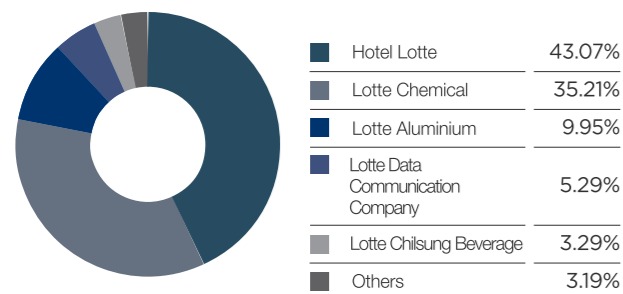
## Composition and Management of the BOD

LOTTE E&C's top decision-making body is the Board of Directors (BOD) elected at the general shareholder's meeting. The BOD constitutes seven directors including inside directors and three non-executive directors. Regular BOD meetings are held quarterly. In addition to regular meetings, BOD meetings can be held on demand. In 2014, the BOD meetings were held 17 times and its members voted on 19 agenda.

Composition of the BOD (as of June-end, 2015)

Title	Names	Position
Inside Directors	Chee Hyun Kim	President & CEO
	Suk Joo Ha	Head, Housing Division Head, Management Support Division
	Hee Cheol Seok	Head, Architecture Division
	Sang Yeol Lee	Head, Civil Engineering Division
Others Executive Directors	Kyuk Ho Shin	General Chairman of LOTTE
	Young Ja Shin	Chairman of Lotte Welfare Foundation
Auditor	Soo Chan Ko	Auditor

Composition of Shareholders (as of June-end, 2015)



## Independence of the BOD

LOTTE E&C defines the BOD through the decision-making procedure within the BOD regulations to ensure its independence.

- The quorum for a meeting of the Board should be majority of the Board and decisions will be made by majority rule.
- All or some directors are allowed to attend the meeting via any form of communication methods which can send and receive video and sound signals. In this case, the directors are considered present at the meeting.
- The voting rights of the directors cannot be exercised if they have a special interest in the decisions to be made on the agenda.

## Auditing

In LOTTE E&C, an auditor who is appointed by vote at the general shareholder's meeting conducts auditing.

The auditor has a right to attend the BOD meetings, supervise the BOD's tasks independently and ask a department to submit related documents on overall business activities. Also, the auditor is to be briefed by the company over its business and handles management information in an appropriate manner.

## Evaluation and Reward

Directors and auditors of LOTTE E&C are rewarded within the limit approved at the general shareholder's meeting.

Financial and non-financial performances of the management are evaluated and yearly salaries and incentives are determined accordingly. The peak amount of remuneration for directors (including non-registered executives) was set as USD 22.22 million at the 2014 general shareholder's meeting.

In 2014, USD 3.84 million was paid to the registered directors during the year, and the average compensation per head is USD 0.55 million.

## Management of the Sustainability Council

LOTTE E&C established the Secretariat for Sustainability Management and Development ("Sustainability Secretariat"), which operates and oversees sustainability management in an integrated manner under the CEO's supervision. We are also running the Sustainability Council made up of six committees for each division.

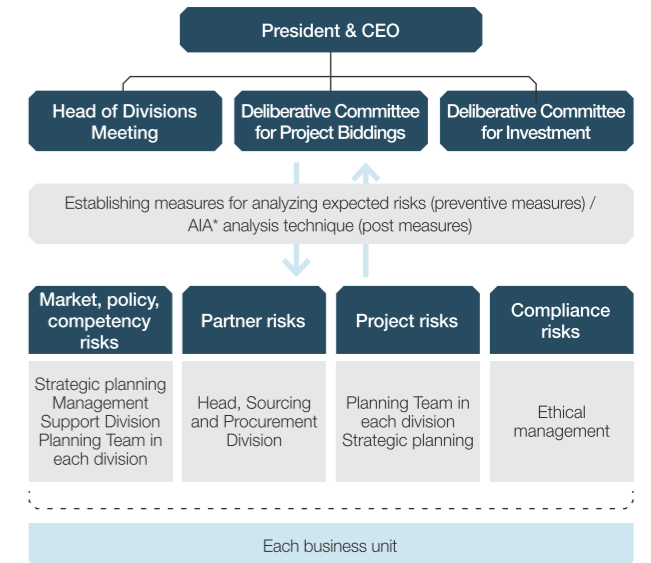
As a decision-making body which discusses and decides on issues related to sustainability management planning and strategy, the council is also conducting programs to raise awareness of sustainability among internal and external stakeholders.

The Sustainability Secretariat is in charge of establishing mid-and long-term sustainability strategies, setting directions and goals for individual division, managing division performance, and responding to external policies and regulations.

# Advanced Risk Management

## Organization for Risk Management

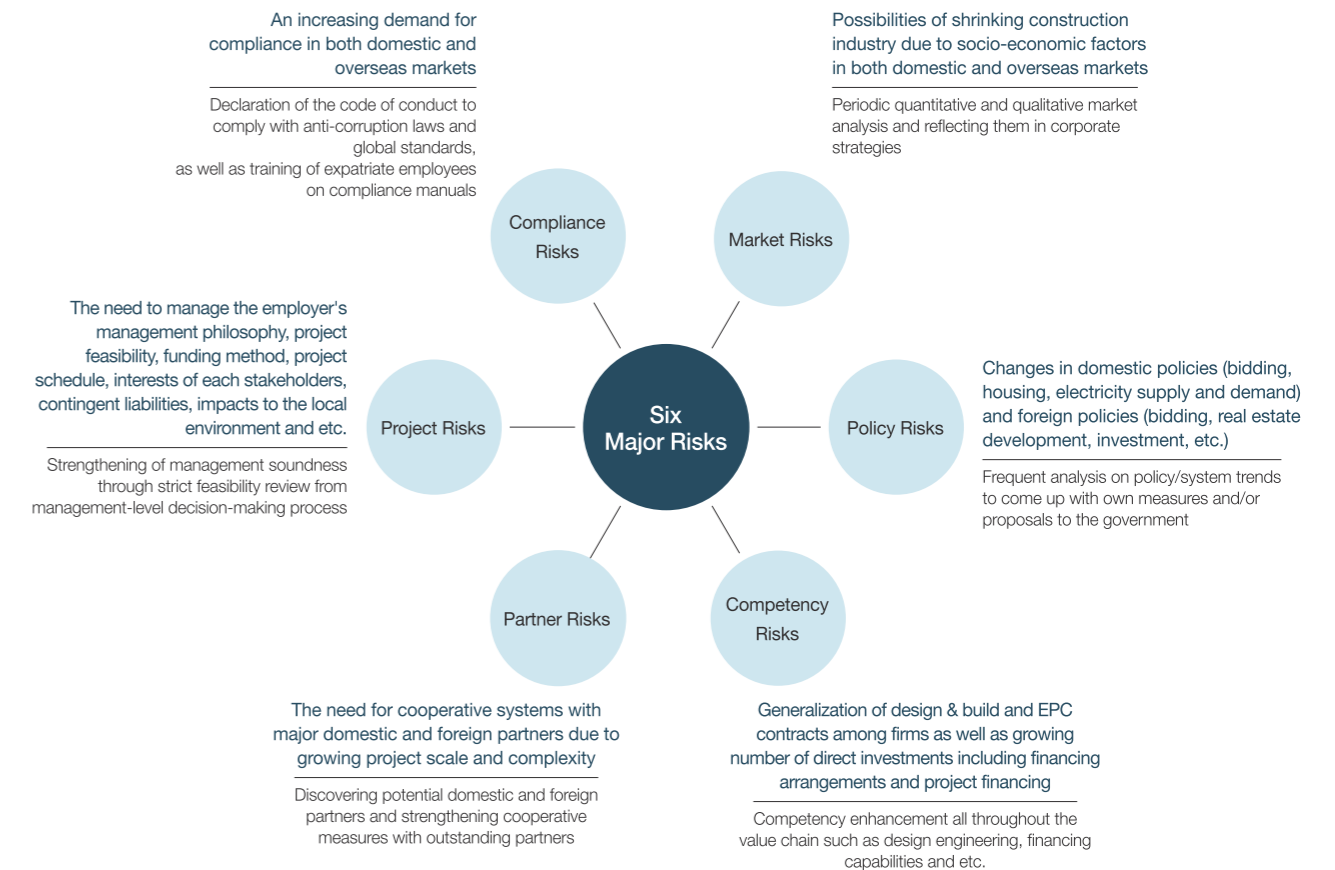
We operate a unit to respond to each risk area and a decision-making system, and establish a pre / post review process including the head of divisions' meetings organized by directors, Deliberative Committee for Project Biddings and Deliberative Committee for Investment. By having the risk management unit, we aim to conduct advanced risk management practices.



\* AIA: After Instant Analysis

## Managing and Responding to Major Risks

We strengthen sound management by defining six major risks, regularly monitoring them in each sector and establishing countermeasures.



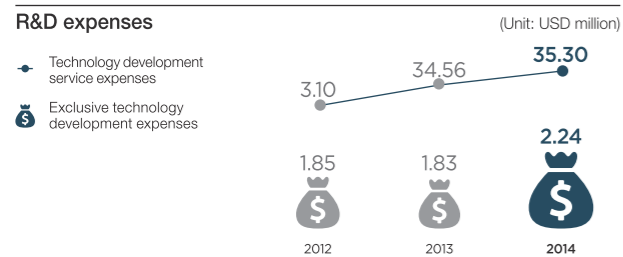


# Securing Technology Leadership

## Strengthening R&D Infrastructure

### R&D Investment and Organization

We strengthen our corporate competitiveness through steady investment in R&D. From operations of our R&D organizations, Infrastructure Research Team, Building Research Team and Future Technology Research Team we initiate new growth projects in architectural, civil, environmental and plant works. We also focus on R&D activities to achieve cost innovation and technology commercialization.



\* Limited to exclusive technology development expenses and technology development service expenses among the total R&D expenses

### Strategic Directions

We secure component technologies commonly applied in diverse business areas as well as core technologies for each product in each sector. From self-development and collaboration with experts in external organizations, in order to provide optimized total solutions to customers.

In 2015, we plan to conduct activities under goals such as strengthening R&D aligned with commercialization, cost innovation, and building up global technologies.

Leading the future growth through core technology development and R&D commercialization.		
<b>Slogan</b>		
<b>Goals</b>	<b>R&amp;D aligned with commercialization</b>	<b>Cost innovation</b>
	<ul style="list-style-type: none"> <li>Securing source technologies to advance into high value-added business</li> <li>Initiating commercialization through R&amp;D</li> </ul>	<ul style="list-style-type: none"> <li>Contribute to achieving the targeted cost rate reduction</li> <li>Developing and applying VE items and cost reduction technologies</li> </ul>
	<b>Building up global technologies</b>	
	<ul style="list-style-type: none"> <li>Developing technologies to strengthen technological competitiveness for overseas business</li> <li>Constructing technology database in each strategic area</li> </ul>	

### Major Activities

We not only secure technologies, but also conduct on-site technical support including technology proposals at the marketing & sales stage, value engineering at the design and construction stage, and construction method feasibility studies, all in order to actually apply the secured technologies.

Services are also performed to contribute to precision-based construction, technical safety and productivity enhancement.

	<ul style="list-style-type: none"> <li>Securing component technologies as total solutions to expand the comprehensive business areas ranging from design, engineering and construction to planning and management of construction projects and maintenance of facilities</li> </ul>
	<ul style="list-style-type: none"> <li>Developing global leading technologies and application processes</li> <li>Accumulating global technological know-how through training for each key area</li> <li>Strengthening company-wide core competencies by disseminating it in the company</li> </ul>
	<ul style="list-style-type: none"> <li>Reflecting the market and customer values through the integrated management of internal and external technological networks</li> <li>Implementing the R&amp;D management system in creating new values</li> </ul>
	<ul style="list-style-type: none"> <li>Providing site-oriented technical support</li> <li>Developing profit-oriented technologies by commercializing the R&amp;D performance</li> </ul>

### Status of IPRs (Unit: Number of Cases)



## Technologies to Lead the Future Market

### Construction Technologies for High-Rise Buildings

The highly competitive construction market for high-rise buildings requires technologies to design, manufacture and vertically pump the Ultra-High Strength Concrete (UHSC) of over 100MPa. The UHSC is usually difficult to apply to high-rise buildings because a high amount of binding materials is used, which leads to the rupture and blockage of conveying pipes due to high viscosity. If so, pipes must be replaced and usability is tarnished.

LOTTE E&C developed the UHSC with a low viscosity of 150MPa for the first time in Korea where concrete pumping for high-rise buildings is made possible thanks to a high quality in fluidity and viscosity. As a result, we have further differentiated our competitiveness in construction of high-rise buildings.



The site where the UHSC vertical pumping was successful for the first time in Korea at 150MPa\*  
\* Mega pascal, the strength to support the load of 1.5 tons per unit area of 1cm<sup>2</sup>

### Reinforcement Method for Unsound Double-Deck Tunnels in an Urban Area

Since double-deck tunnels have emerged as a new alternative to spread the ground traffic volume in a metropolitan area, we conduct researches on developing technologies for double-deck tunnels in an urban area, a core construction technology.

A double-deck tunnel refers to a tunnel where two and more decks exist on a cross-section of a tunnel, combining parallel tunnels where lanes bound away and to the city area are separately in place. In a double-deck tunnel, the underground space can be efficiently utilized and excavation cost can be saved compared to a parallel tunnel. Moreover, circular cross-sections can be constructed so a double-deck tunnel allows multiple usages using upper and lower spaces.

**Major Research Areas**

- Case studies on unsound special sections (subsurface turnout sections / inlets & outlets / adjacent ground excavation)
- Conducting similar patent reviews for reinforcement technology for unsound special sections (turnout pillars) and proposing required performance for development
- Devising ideas on reinforcing unsound special sections in a double-deck tunnel

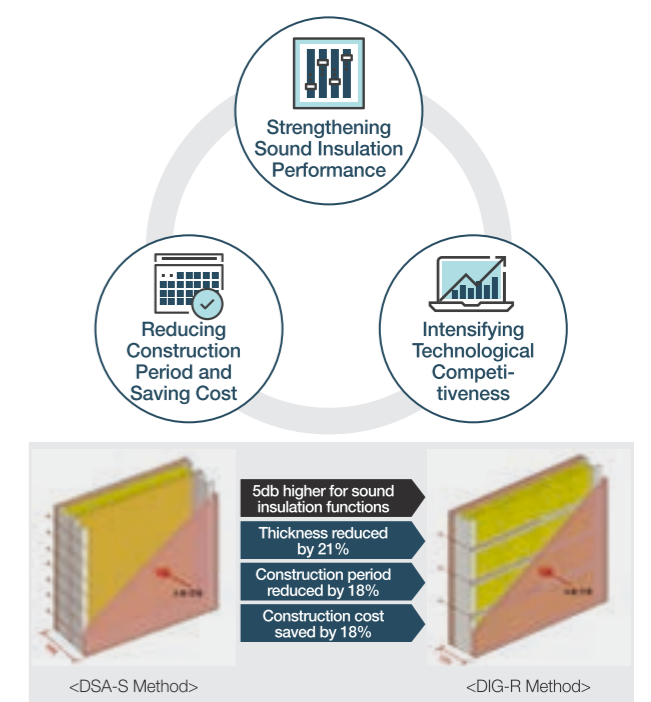
## Technologies to Enhance the Quality of Life for Customers

### Technologies to Improve the Sound Insulation between Households

We developed the reduction performance of drywall systems where sound insulation performance has been upgraded to insulate external noise for each household and create a decent living environment. The new technologies for Double Insulation Glasswool – Resilient (DIG-R\*) enhance the space utilization with a thinner wall, while enhancing the sound insulation performance, lowering the construction cost and shortening the construction period. Its sound insulation performance is superior to the ordinary sound insulations between households by 5 to 10dB, and it can save construction cost by about 18%.

\* Double Insulation Glasswool - Resilient

### Expected Results from New Technologies by DIG-R



### Radioactive Ray Shielding Concrete

We developed the radioactive ray shielding concrete to shut off over 99% of radioactive rays with a thickness of 25cm, seeking to insulate the most dangerous gamma ray and high-speed neutron ray among radioactive rays that occur in medical devices. We plan to continuously apply it to relevant fields including hospital structures and cancer centers where radioactive ray shielding is needed, and in production of storage and shipping containers for radioactive waste.

### System for Snow Melting and Re-icing Prevention on Roads Using Geothermal Energy

We developed a system for snow melting and re-icing prevention on roads using geothermal energy amid increasing social issues on safety and disaster prevention. Prior monitoring and snow melting technologies for the black ice covering roads in winter were developed. We save the amount of energy used by utilizing the geothermal energy as a new, and renewable energy as a source for snow melting.

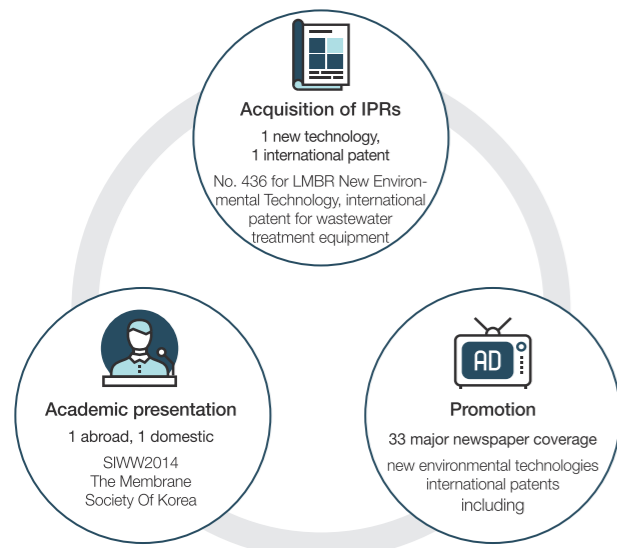


## Technologies for Creating Eco-friendly Values

### | Advanced Sewage & Wastewater Treatment System

The LMBR (LOTTE Membrane Bio-Reactor) is an advanced sewage water treatment technology to separate pollutants by placing thin-film flat separation membranes serving as filters in a biological reactor for sewage and wastewater treatment, and to remove and sterilize the phosphorous ingredients, chroma and pollutants using ozone. It has been proved to be highly efficient in removing phosphor in water. Thus, the technology not only resolves the eutrophication in rivers and lakes that repeatedly occurs every year but also enables its substitute functions to secure water resources by producing stable treatment water.

#### Key Performance of LMBR



### | Waste Drying Apparatus

We acquired the IPRs for the 'multi-stack waste drying apparatus' and 'rotary multi-stack waste drying apparatus' to stably dry biomass and organic waste resources. The IPRs are apparatuses to dry biomass with a high moisture content rate containing sludge, wood and food stuffs. The 'multi-stack waste drying apparatus' is used for the sludge generated in the process of treating sewage water, and the 'rotary multi-stack waste drying apparatus' is used for general biomass, thus maximizing practicality and efficiency.

### | Desertification Prevention Technology

We developed a new technology for preventing desertification\* to reduce the damage from the dust from yellow sand wind, while rapidly putting forth afforestation projects in desert areas. The technology strengthens the soil binding and reduces erosion by attaching adhesives to sand using microorganisms and the fibers disintegrated by microorganisms. In 2014, we conducted experiments in deserts in Kuwait for field testing and commercializing technologies. Driven by the field testing outcome, we plan to develop the technology so that it can be used for plant construction sites in deserts and eco-friendly Slope Protection Constructions at home and abroad.

\*International patent filing completed in the U.S. and Mongolia on February 26, 2013 (Application No. PTC/KR2011/008532)

### | Two-way Void Slab (TVS)

The Two-way Void Slab (TVS) is an engineering technique to reduce the self-weight of the slab-on-grade in buildings. The concrete volume is lowered by injecting void forms into the concrete slab-on-grade, reducing the CO<sub>2</sub> emissions as an eco-friendly floor structure system. Light-weight slabs enhance the durability performance, and reduces the floor height, without causing any additional construction period or cost. It can be easily applied to worksites of any scale due to its simple work process.

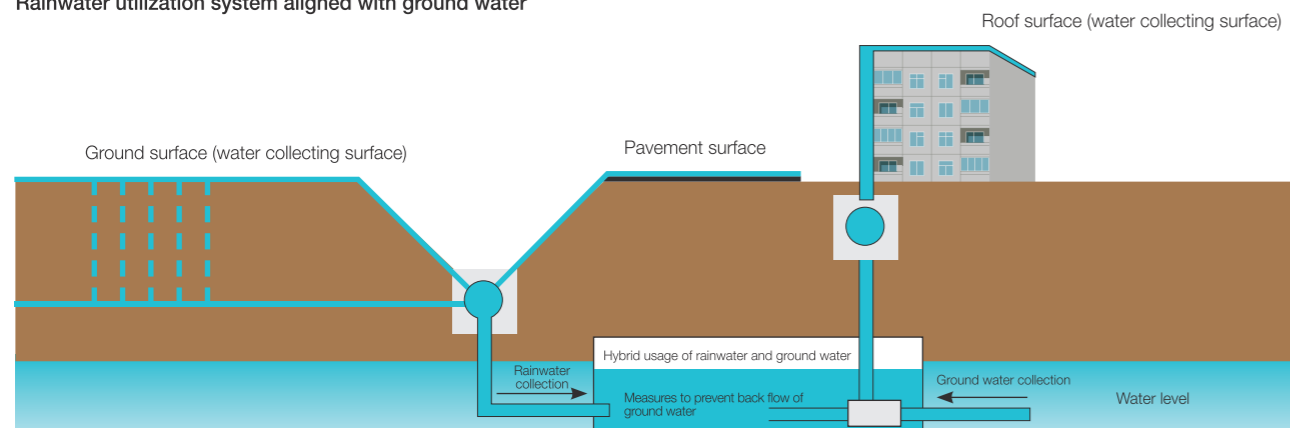
### | LID Water Management System

The LID (Low Impact Development) Water Management System is a low-impact development technique to resolve distortion of the water circulation resulting from urbanization, climate and so forth. It is an efficient rainwater management technique. LOTTE E&C has acquired an IPR\* by developing the 'ground water-aligned rainwater utilization system' for the first time in Korea, which is related to LID water management system. LOTTE E&C plans to establish a small-scale test-bed facility and operate it.

The system is a facility to utilize both rainwater and ground water, enabling the rainwater collected from building rooftops and floor pavements, and the surplus ground water amid the higher underground water level to be injected to a rainwater reservoir for water usages. It can enhance the water utilization efficiency and will be gradually expanded to the design of eco-friendly buildings.

\* Patent Number 10-1433076: 'rainwater runoff and ground water management system'

#### Rainwater utilization system aligned with ground water



# LOTTE WORLD TOWER

LOTTE E&C applies high-rise building construction technologies and competencies to design and in the construction of Lotte World Tower, a would-be global landmark. It is to be born as a safe and eco-friendly high-rise building by securing safety of global standards and utilizing eco-friendly facilities.

88 Super High-rise Technologies

90 Safety First

92 Eco-friendly



# SUPER HIGH-RISE TECHNOLOGIES



## 1 Shielding the Inflow of Water from the Seokcheon Lake and Ground Water with through Cut-off Walls

- 1.4km of slurry wall method has been applied to shield the inflow of water from the Seokcheon Lake and ground water from outside

## 2 Robust Foundation Technology

- Constructing the world's largest mat foundation with approximately 32,000m<sup>3</sup> of concrete which has width and length of 72m and thickness of 6.5m (Equivalent to 80% of a soccer field in terms of area and 2 buildings in terms of height)
- 4,200 tons of concrete and 80,000 tons of high-strength concrete were used.
- Ensuring a shorter construction period and a higher quality through continued pumping for 32 hours by using ultra-low heat concrete for the large mat foundation

## 3 High-Rise Structure Technology

- Applying the globally verified RC core wall, mega columns, steel outriggers and the belt truss structure to effectively support vertical and lateral load including wind and earthquakes

## 4 High-Performance Concrete Mixing Design and Construction Technique

- Securing special concrete mixing design and construction techniques befitting the purpose of structures e.g., fire-proof, high-pumping, mass, ultra-low heat & ultra-high strength, light-weight concrete

## 5 High-Precision Surveying and Verticality Control Technology

- Installing the navigation satellite receivers on precision slopes and the highest floor to ensure high-precision surveying with no margin of error
- Operating the Global Navigation Satellite System (GNSS) to rectify errors by receiving survey data from over four satellites

## 6 Lifting Optimization Technology

- Allocating tower cranes and construction lifts (hoists) to enable efficient delivery, considering the maximum weight of materials and the location of yards

## 7 High-Rise Vertical Pumping Technology

- Pumping high-strength concrete directly from 1F to as high as 515m shortening the pumping time and securing stability in quality



# SAFETY FIRST

## A building with its priorities focused on safety

### Control Tower for Safety Management

LOTTE Group launched the 'Safety Management Committee' to prevent and manage safety accidents, and operates the Safety Management Division under it. The committee consists of three parts: safety and inspection led by the Group's Safety Team, safety management under both LOTTE Corporation and LOTTE E&C and integrated promotion. Safety and inspection unit conducts prior facility safety check and shares the outcome with the safety management unit, while the promotion unit discloses the content to the media immediately to enhance transparency.

Moreover, the Safety Technology Advisory Group and Safety Monitoring Group are to be launched consisting of external specialists in architecture & construction, structure, machinery & electricity, safety and fire safety, taking part in safety check. We also plan to outsource safety check by sector-specific expert institutions in architecture, fire safety and electricity.

### Safety System

By installing Korea's first double-deck elevators, they are operated to be converted into emergency evacuation elevators upon the occurrence of emergencies.

Rescue stairs are designed with the width of 1.5m, which is 30cm wider than the legal standard of 1.2m so that two people can go down the stairs at the same time. As a result, we were able to set up a safety system enabling 15,000 people in the tower to be rescued within 63 minutes.

### Evacuation hours and plans at the Lotte World Tower



Type	Domestic standards	Lotte World Tower
Refuge Area	One refuge area for every 30 floors	5 refuge areas (4 refuge areas in total for Burj Khalifa* in Dubai)
Evacuation elevators	Installation of evacuation elevators	19 evacuation elevators
Evacuation stairs	Minimum effective width: 1.2m	Effective width: 1.5m (additional 30cm secured)
Hours of fire resistance	For 3 hours, Korea's highest level: major structure sections (columns, beams, core walls, etc.)	
Fire extinguishing water capacity	60 minutes (for buildings of 50F and above)	60 minutes (possible to stretch up to 300 minutes by connecting fire extinguishing tanks)

\* The tallest building as of now (163 floors, 828m)



**9,017** people

Evacuation capacity (Stairs)



**6,268** people

Evacuation capacity (Elevators)



**63** minutes

Total evacuation hours

Korea's first-of-its-kind double-deck elevators

The Lotte World Tower is a smart building where its systems automatically adjust to different circumstances.

It is constructed with cutting-edge technologies on robust structures and safety design. We apply safety conditions for the post-construction operating stage as well as the construction stage in the advanced level.

### Fire Safety System

The Lotte World Tower fully implements the safety requirements of the International Building Code (IBC) and the National Protection Association (NPA), while applying the U.S. fire safety standards upon design.

When a fire occurs, the building can bear up to the unprecedented 3 hours.

	24-hour Integrated Control Center	<ul style="list-style-type: none"> <li>Securing stability in the operation of all systems including fire safety and security</li> </ul>
	Fire detection and alignment with surveillance cameras	<ul style="list-style-type: none"> <li>Installing fire detectors in major surveillance areas and thermal imaging facilities for detection</li> </ul>
	Production of a manual for crisis and disaster response	<ul style="list-style-type: none"> <li>Producing a manual on measures to evacuate upon such disasters as earthquakes, fire and terrorism, countermeasures upon emergencies and code of actions</li> </ul>



Over **16,000**

installed fire detectors



Over **30,000**

sprinklers installed



Up to **60** minutes

of water supply secured for fire extinguishing

24-hour integrated control center





# ECO-FRIENDLY

## Value creation through environmental-friendly design

### Eco-friendly Green Tower

The Emissions Trading Scheme has been in effect along with a greater interest in preventing global warming throughout the world, thus raising needs for energy saving more than ever. The Lotte World Tower has proactively adopted eco-friendly technologies to reduce GHG by utilizing new and renewable energies.

Eco-friendly technologies and systems applied to the Lotte World Tower



#### Wind Generation on the Building Top

Installing wind turbines on the building top of the high-rise building



#### High-efficiency Appliances Including LED Lighting

Installing energy saving high-efficiency equipment and appliances



#### High-Efficiency Low-E Glass

Using double-layered high-thermal insulation glass injected with argon gas



#### Building-Integrated PVs (BIPVs)

Installing PV modules on the rooftop and building exterior



#### Energy Generated by the Difference in Water Temperature with Water from the Han River

Installing Korea's first and largest water temperature difference energy system



#### Cooling & Heating using Geothermal Energy

Cooling & heating system using the moderate underground temperature throughout the year



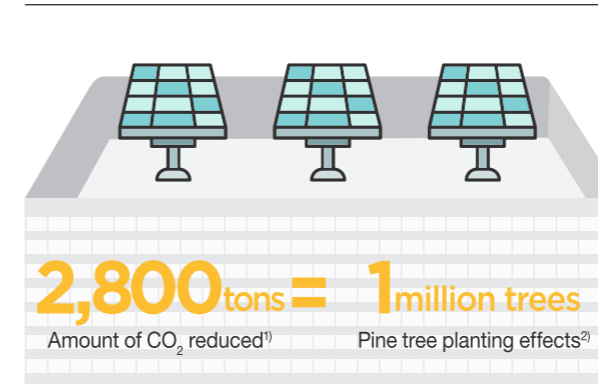
The Lotte World Tower is a global landmark representing the eco-friendly mechanism for sustainable environmental protection.

It is envisioned as an eco-friendly high-rise building utilizing the eco-friendly system and facilities where Mother Nature is the source of energies.

### Utilizing New and Renewable Energies

We installed and operate 108 sheets of solar panels on an area of 305m<sup>2</sup> for Avenuel Building as well as a total of 1,187 sheets of roof-top-type PV modules on the rooftop of the Avenuel Building and the Shopping Mall of the Lotte World Mall. We use the geothermal energy system of 2,920RT\*, which is Korea's largest of its kind for buildings, 150~200m deep under the ground of the Lotte World Mall for cooling and heating. We plan to utilize 14.5% of the total energy amount with new and renewable energies by minimizing energy consumption and loss.

\* RT: Refrigeration Ton



1) Amount reduced by May 2015 since the opening of the Lotte World Mall

2) Based on 2.76kg for the amount of CO<sub>2</sub> absorbed by a 20-year-old pine tree for a year

### Green Building Certification

The Lotte World Tower and the Lotte World Mall were designed under a concept of 'an eco-friendly multi-functional complex that reduces energy.' They gained high recognition as green buildings in the adoption of new and renewable energy systems and cutting-edge technology application.

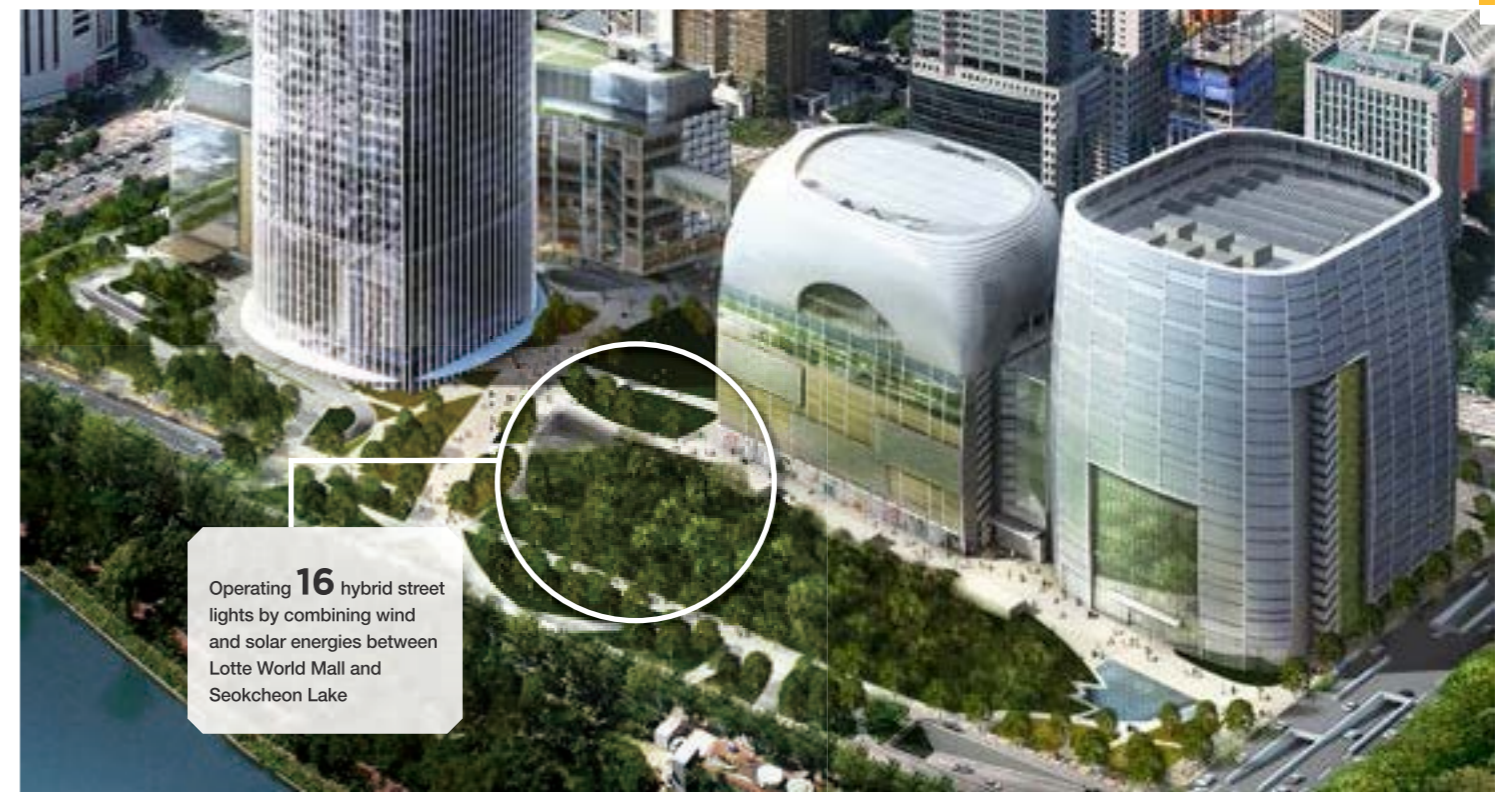
In 2014, they acquired the 'Grade of Highest Excellence' for a Green Building, and efforts are made to acquire the U.S.' LEED Gold by the end of 2016.

#### Status of green building certification

June 2014	Scheduled for the 3 <sup>rd</sup> quarter of 2015	Scheduled for 2016-end
Lotte World Mall	Lotte World Performance Hall	Lotte World Tower
<ul style="list-style-type: none"> <li>Acquired the 'Grade of Highest Excellence' for a Green Building</li> </ul>	<ul style="list-style-type: none"> <li>Acquired the 'Grade of Highest Excellence' for a Green Building</li> </ul>	<ul style="list-style-type: none"> <li>The 'Grade of Highest Excellence' for a Green Building in progress</li> <li>Certification of the LEED* Gold in progress</li> </ul>

\* LEED: A program to certify sustainable buildings developed by the USGBC (U.S. Green Building Council (USGBC) in 1998 that quantifies buildings' eco-friendliness & energy efficiency

Green Axis formed in the Eco Park on top of the underground driveway of Jamsil-gil and in the World Park within the complex of the Lotte World Tower.



Operating 16 hybrid street lights by combining wind and solar energies between Lotte World Mall and Seokcheon Lake



# APPENDIX

## Major Performance in Sustainable Management

### Economic Performance

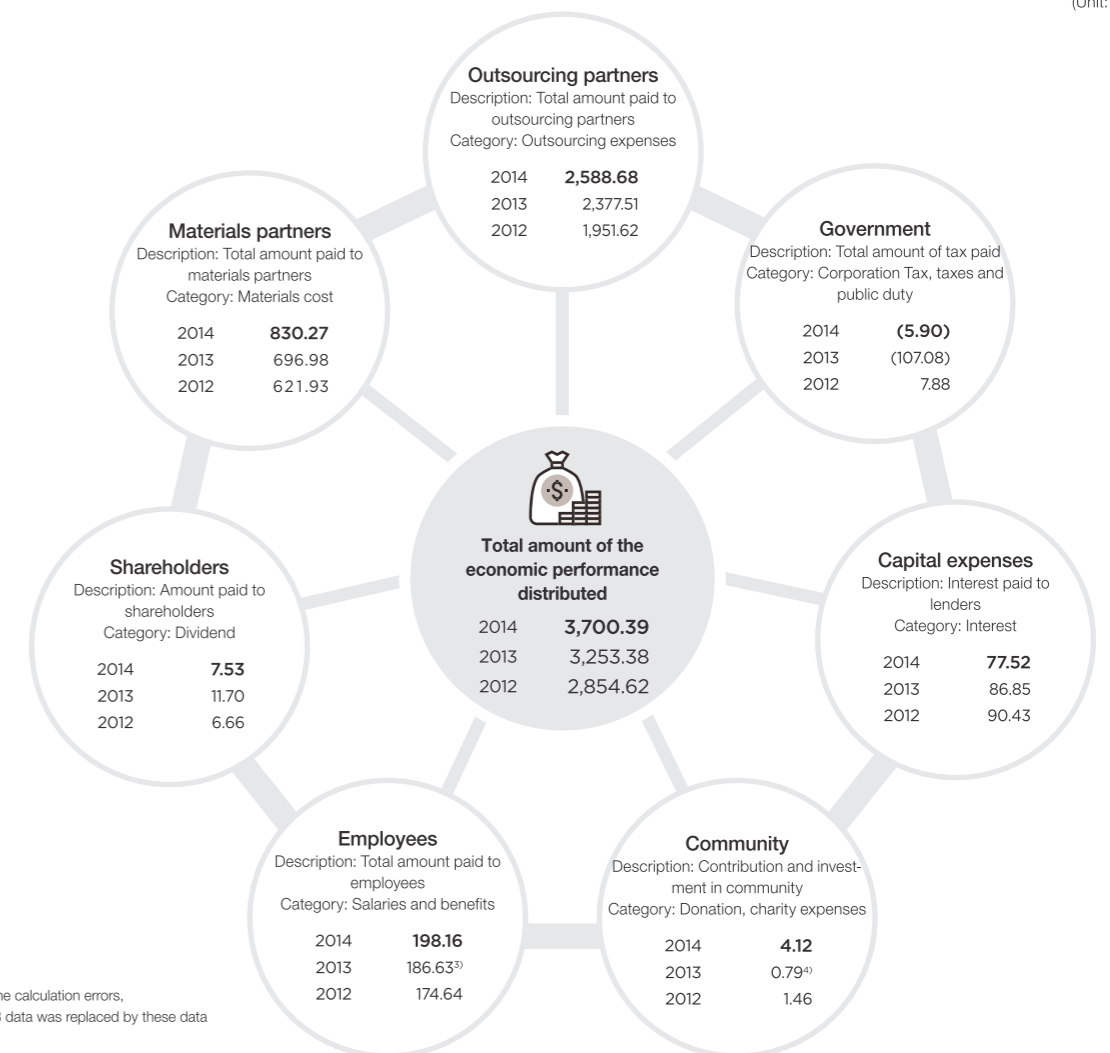
As a result of sustainable management activities, economic performance has improved compared to the past. Economic value generated through business activities is distributed to shareholders, investors, employees, government, partners and community to practice mutual growth with various stakeholders.

Economic <span style="float: right;">(Unit: USD Million)</span>			
Classification	2012	2013	2014
Total orders	4,858.60	4,488.81	5,081.32
- Domestic orders	4,238.93	4,221.89	4,784.52
- Overseas orders	619.67	266.92	296.81
Sales	3,438.47	3,933.80	4,224.94
Gross profit	358.83	352.34	323.13
Operating income	158.80	45.75	138.73
Earnings before tax	21.45	(257.24)	(51.02)
Net income	13.57	(150.16)	(45.13)
Total assets	4,708.91	5,140.16	4,992.70
Economic performance distributed	2,854.62 <sup>1)</sup>	3,253.38 <sup>2)</sup>	3,700.39

1, 2) Modifying the data due to errors in data aggregation

### Distribution of Economic Performance

(Unit: USD Million)



3), 4) Due to the calculation errors, the 2013 data was replaced by these data

95 Major Performance in Sustainable Management  
 98 Third-Party Assurance Report  
 100 GRI G4 Index  
 103 Memberships and Participating Associations / Awards  
 Overseas Branch Offices and Subsidiaries



## Social Performance

Economic values are shared with stakeholders such as employees, customers, partners and communities through business activities

Classification	Category	Unit	2012	2013	2014
Current Status of Employees	Total number of employees <sup>1)</sup>	people	2,950	2,900	2,852
	Rate of regular employees <sup>2)</sup>	%	73.3	73	75.8
	Rate of contract-based employees	%	26.7	27	24.2
	Number of male employees	people	2,803	2,768	2,720
	Number of female employees	people	147	132	132
Female Leadership	Female employee ratio	%	5	4.6	4.6
	Female executive <sup>3)</sup> ratio	%	0.4	0.6	0.8
Current Status of the Disabled	Total number of the disabled employed	people	34	36	49
Employment Status	No. of turnovers	people	129	118	99
	No. of local recruits	people	118	159	130
	No. of local talents recruited for early openings	people	42	17	25
Status for maternity & childcare leave <sup>4)</sup>	Return rate after child-care leave	%	89	75	75
	Rate of working for over 12 months after return from leave	%	75	89	67
Talent Development	Total number of trainees	people	2,950	2,900	2,852
	Total training expenses	USD Million	3.84	3.04	2.76
	Training hours per individual	hour	86	91	101
Status of ethical management	Number of employees participating in ethical management training	people	2,860	2,900	2,852
	Number of violations of ethical practice	case	9	15	15
Status of Social Contribution Activities	Expenses for social contribution	USD Million	1.46	0.79	4.12
	No. of employees participating in volunteering	people	1,903	1,897	1,609
	No. of volunteering teams for social contribution	Number	50	77	99
Status of Safety Management	Industrial accident rate	%	0.11	0.17	0.11
	Occurrence of severe disasters	case	2	6	4

1) Total number of employees and contract-based employees (excluding those dispatched and subcontracted)

2) Total number including executives and those under an open-ended contract

3) Ratio of female executives (level of managers and above) to total number of employees

4) Data from 2012 and 2013 modified in accordance with the changes in the data calculation methods

## Environmental Performance

In 2014, we managed the amount of usage including materials, waste, energy and water to minimize the environmental impact resulting from business activities, while strengthening on-site safety activities.

Scope of data collection: 226 sites in 2012, 193 sites in 2013, 267 sites owned in 2014

Classification	Category	Unit	2012	2013	2014
Material Consumption	Ready-mix concrete	m <sup>2</sup>	2,011,156	2,650,201	2,062,693
	Cement	Ton	118,275	442,475	278,032
	Aggregate	m <sup>2</sup>	171,735	243,055	291,133
	Asphalt concrete	Ton	268,509	358,635	266,367
	Sand	m <sup>2</sup>	152,164	101,942	73,274
	Rebar	Ton	220,978	222,115	211,691
	Plaster board	Board	844,092	712,527	1,462,275
	Recycled Aggregate Consumption	Recycled aggregate consumption	m <sup>2</sup>	7,052	17,117
Energy Consumption	Steam	TJ	-	-	-
	Electricity	TJ	1,266	1,272	1,015
	Others <sup>1)</sup>	TJ	141	283	217
Waste Generation	Waste concrete	Ton	179,523	230,712	191,088
	Waste asphalt concrete	Ton	37,003	32,522	23,371
	Wood wastes	Ton	4,768	6,765	6,379
	Waste synthetic resins	Ton	6,417	7,133	8,623
	Waste soil and stones	Ton	7,444	65,518	31,268
	Construction sludge	Ton	389	1,276	1,332
	Roof tile wastes	Ton	372	0	-
	Tile / ceramic wastes	Ton	15	-	13
	Waste bricks	Ton	364	-	-
	Waste blocks	Ton	601	-	-
	Textile wastes	Ton	233	24	484
	Waste boards	Ton	717	1,860	1,634
	Waste glass	Ton	0	0	-
	Mixed construction waste	Ton	69,683	89,852	115,174
	GHG Emissions <sup>2)</sup>	Scope 1(direct emissions)	tCO <sub>2</sub> e	10,287	20,435
Scope 2(indirect emissions)		tCO <sub>2</sub> e	61,471	61,779	49,332
Water Consumption	Water and sewage consumption	Ton	1,011,816	1,374,452	4,778,929
	Underground water consumption	Ton	147,125	333,816	3,502,181

1) Others: LNG, LPG, Gasoline, Diesel, Kerosene

2) The 2012 / 2013 data re-calculated with a completed setup of the GHG and energy management system in 2014



# Third-Party Assurance Report

## Introduction

DNV GL Business Assurance Korea ('DNV GL'), part of DNV GL Group, has been engaged by LOTTE Engineering & Construction Co., Ltd. ('LOTTE E&C') to provide independent assurance over 2015 Sustainability Report ('Report').

LOTTE E&C is responsible for the collection, analysis, aggregation and preparation, presentation of the printed version of the Report. The responsibility of DNV GL is to provide independent assurance to the Management of LOTTE E&C on the reliability of the information contained in the Report and to express overall opinion as per the scope of assurance engagement as defined in this statement. Our responsibility is in accordance with the terms of reference agreed on. The assurance engagement is based on the assumption that the data and information provided are complete and true. The intended recipients of the assurance statement are the stakeholders of LOTTE E&C.

## Scope of Assurance

The scope of assurance included a review of sustainability activities and performance data over the reporting period 1<sup>st</sup> January to 31<sup>st</sup> December 2014 generated from headquarters, construction management division and 267 sites in Korea. Unless otherwise stated the performance from subsidiaries, associated companies and suppliers are excluded. The assurance work included:

- Evaluation of the reporting principles for defining the sustainability report content and the quality as defined in the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines 4.0 (In accordance – Core) and relevant performance indicators.
- Evaluation of adherence to Accountability principles provided in AA1000 Accountability Principles Standard:2008

## Verification Methodology

The assurance engagement was conducted in line with the requirements of the AA1000 Assurance Standard:2008, Type 1 assurance. We applied a moderate level of assurance. The audit was carried out in July 2015. The site visits were made to the LOTTE E&C Head office in Korea.

As part of the verification, we performed sample-based audits and undertook the following activities;

- challenged the sustainability-related statements and claims made in the Report and
- assessed the robustness of the underlying data management system, information flow and controls;
- interviewed representatives from the various departments;
- conducted document reviews, data sampling and interrogation of supporting databases and associated reporting system and associated reporting systems as they relate to selected content and performance data;
- reviewed the outcomes of stakeholder consultation report and the materiality assessment report.

## Conclusion

In DNV GL's opinion based on the scope of this Assurance Engagement, the report provides an accurate representation of LOTTE E&C's sustainability-related performance in 2014. Any errors or misstatements identified during the engagement were corrected prior to the Report being published. The verified performance indicators are marked in the GRI Content Index included in the Report. Further opinions with regards to the following AccountAbility Principles(2008) are made below;

### Inclusivity

LOTTE E&C has identified 4 internal and external stakeholder groups such as Employees, Business Partners, Customers, and Local Communities. LOTTE E&C's stakeholder engagement activities occurred at the company and business unit levels through various platforms. The engagement and communication channels for selected stakeholders are described in the Report. The Customers among the stakeholder groups are mainly limited to the owners of the apartments and the buildings constructed by LOTTE E&C, hence it is recommended that LOTTE E&C expand the scope of the customers to various business areas other than only in housing business.

### Materiality

LOTTE E&C carries out the yearly materiality assessment. The relevant issue pool is formed by analyzing the key issues from the global sustainability initiatives and standards, the topics which industry peer group considers to be material and the subjects covered by mass media. The issues in the pool are rated by stakeholders via survey in terms of the impact. As a result, the output of the process brings out 5 material aspects such as the enhancement of future competitive edge, the occupational safety management in a preventative way, the response to climate change, the establishment of creative organizational culture, and the value creation in the local community. LOTTE E&C reports the sustainability performance most relevant to the material issues. In materiality determination process, LOTTE E&C should accommodate broader range of external stakeholders' view.

### Responsiveness

The Report provides a comprehensive overview of LOTTE E&C's activities. It keeps stakeholders informed of corporate decisions in terms of achievements and performance in relation to the sustainability material aspects. LOTTE E&C's stakeholder survey and materiality assessment were used to determine the type of information that is material to stakeholders. The information is considered in the preparation of the Report. LOTTE E&C should develop a mechanism to respond to the concerns and expectations of the stakeholder with regards to the issues associated with the project or activity having great social impacts.

## Limitation

The engagement excludes the sustainability management, performance and reporting practices of LOTTE E&C's subsidiaries, associated companies, suppliers, contractors and any third-parties mentioned in the Report. DNV GL did not interview external stakeholders as part of this Assurance Engagement. Economic performances based on the financial data were cross-checked with internal documents and the audited financial statements. The aggregation and calculation process for building economic performances is reviewed and tested by the verification team. Limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization were applied. The baseline data for Environmental and Social performance are not verified, while the aggregated data are used for the verification. The qualitative statements directly addressed in the GRI Content Index are not verified but the audit team has just confirmed that the indicator is reported in the GRI Content Index. DNV GL expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Assurance Statement.

## Statement of Competence and Independence

DNV GL is a leading provider of sustainability services, including the verification of sustainability reports. Our environmental and social assurance specialists operate in over 100 countries. DNV GL was not involved in the preparation of any statements or data included in the Report except for this Assurance Statement. DNV GL maintains complete impartiality toward stakeholders interviewed during the verification process.

29<sup>th</sup> July 2015  
Seoul, Republic of Korea  
**In Kyoon Ahn**  
Country Representative  
DNV GL Business Assurance Korea Ltd



# GRI G4 Index

## GENERAL STANDARD DISCLOSURES

General Standard Disclosure	Page	Coverage
<b>Strategy and Analysis</b>		
G4-1 Additional disclosure requirements	2,3	√
G4-2 Describe the approach to the construction of new assets versus retrofits, upgrades, and refurbishments, and the effect this has on impacts, risks, and opportunities.	44,45	√
<b>Organizational Profile</b>		
G4-3 Report the name of the organization.	4	√
G4-4 Report the primary brands, products, and services.	6-37	√
G4-5 Report the location of the organization's headquarters.	4	√
G4-6 Report the number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report.	36,37	√
G4-7 Report the nature of ownership and legal form.	4,82	√
G4-8 Report the markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries).	4,36,37	√
G4-9 Report additional information, for example: Gross lettable area for assets under construction and management. Vacancy rate (real estate).	4,95,96	√
G4-10 Supervised workers include contractors and sub-contractors delivering projects and building services. Report the total workforce by other diversity groups, and contract type (full-time and part-time workers). Construction companies should also break down workforce figures by employment contract for those working on projects in insecure areas.	96	√
G4-11 Report the percentage of total employees covered by collective bargaining agreements.	None	√
G4-12 Describe the organization's supply chain.	77	√
G4-13 Report any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain, including: · Changes in the location of, or changes in, operations, including facility openings, closings, and expansions · Changes in the share capital structure and other capital formation, maintenance, and alteration operations (for private sector organizations) · Changes in the location of suppliers, the structure of the supply chain, or in relationships with suppliers, including selection and termination	About this report	√
<b>Organizational Profile: Commitments to External Initiative</b>		
G4-14 Report whether and how the precautionary approach or principle is addressed by the organization.	83	√
G4-15 List externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses.	62	√
G4-16 List memberships of associations (such as industry associations) and national or international advocacy organizations in which the organization	103	√
<b>Identified Material Aspects and Boundaries</b>		
G4-17 A. List all entities included in the organization's consolidated financial statements or equivalent documents. B. Report whether any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report.	About this report	√
G4-18 A. Explain the process for defining the report content and the Aspect Boundaries. B. Explain how the organization has implemented the Reporting Principles for Defining Report Content.	43	√
G4-19 List all the material Aspects identified in the process for defining report content.	43	√
G4-20 For each material Aspect, report the Aspect Boundary within the organization, as follows: · Report whether the Aspect is material within the organization · If the Aspect is not material for all entities within the organization (as described in G4-17), select one of the following two approaches and report either: a. The list of entities or groups of entities included in G4-17 for which the Aspect is not material or b. The list of entities or groups of entities included in G4-17 for which the Aspects is material	43	√
G4-21 For each material Aspect, report the Aspect Boundary outside the organization, as follows: · Report whether the Aspect is material outside of the organization · If the Aspect is material outside of the organization, identify the entities, groups of entities or elements for which the Aspect is material. In addition, describe the geographical location where the Aspect is material for the entities identified · Report any specific limitation regarding the Aspect Boundary outside the organization	43	√
G4-22 Report the effect of any restatements of information provided in previous reports, and the reasons for such restatements.	95,96	√
G4-23 Report significant changes from previous reporting periods in the Scope and Aspect Boundaries.	None	√
<b>Stakeholder Engagement</b>		
G4-24 Identify and report those stakeholder groups that are engaged at the organizational level and those that are engaged at a project or asset level	42-43	√
G4-25 Report the basis for identification and selection of stakeholders with whom to engage.	42-43	√
G4-26 Report the organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process.	42-43	√
G4-27 Report key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting. Report the stakeholder groups that raised each of the key topics and concerns.	42-43	√
<b>Report Profile</b>		

General Standard Disclosure	Page	Coverage
G4-28 Reporting period (such as fiscal or calendar year) for information provided.	About this report	√
G4-29 Date of most recent previous report (if any).	About this report	√
G4-30 Reporting cycle (such as annual, biennial).	About this report	√
G4-31 Provide the contact point for questions regarding the report or its contents.	104	√
<b>Report Profile: GRI Content Index</b>		
G4-32 A. Report the 'in accordance' option the organization has chosen. B. Report the GRI Content Index for the chosen option (see tables below). C. Report the reference to the External Assurance Report, if the report has been externally assured. (GRI recommends the use of external assurance but it is not a requirement to be 'in accordance' with the Guidelines.)	About this report 100-102	√
<b>Report Profile: Assurance</b>		
G4-33 A. Report the organization's policy and current practice with regard to seeking external assurance for the report. B. If not included in the assurance report accompanying the sustainability report, report the scope and basis of any external assurance provided. C. Report the relationship between the organization and the assurance providers. D. Report whether the highest governance body or senior executives are involved in seeking assurance for the organization's sustainability report.	98-99	√
<b>Governance</b>		
G4-34 Report the governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts.	82	√
<b>Ethics and Integrity</b>		
G4-56 Report the process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees.	4,66	√

## SPECIFIC STANDARD DISCLOSURES

### Category: Economic

	DMA and Indicators	Page	Omissions	Coverage
Economic	Generic DMA	44,45		√
	G4-EC1 Report payments to government broken down by: Payments direct to government; and Payments to government as agent, e.g., taxes paid to government but recharged to a third party (such as property or land taxes recharged to tenants or land owners).	44,45,95		√
	G4-EC2 Financial implications and other risks and opportunities for the organization's activities due to climate change	50,51		√
Indirect Economic Impacts	Generic DMA	54,55		√
	G4-EC7 Development and impact of infrastructure investments and services supported	54,55,78-80		√
	G4-EC8 Significant indirect economic impacts, including the extent of impacts	54,79,96		√

### Category: Environmental

	DMA and Indicators	Page	Omissions	Coverage
Materials	G4-EN1 Materials used by weight or volume	97		√
	G4-EN2 Percentage of materials used that are recycled input materials			√
Energy	Generic DMA	50,51		√
	G4-EN3 Energy consumption within the organization	97		√
	G4-EN4 Energy consumption outside of the organization	Not subject to management		√
	G4-EN5 Energy intensity	Building energy reported in energy intensity		√
	G4-EN6 Reduction of energy consumption	51		√
	G4-EN7 Reductions in energy requirements of products and services	51		√
	G4-CRE1 Building Energy Intensity	2,417.54 kwh/person		√
Water	Generic DMA	59		√
	G4-EN8 Total water withdrawal by source	97		√
	G4-EN9 Water sources significantly affected by withdrawal of water	No water sources are significantly affected		√
	G4-EN10 Percentage and total volume of water recycled and reused	No amount used		√
	G4-CRE2 Building Water Intensity*	137.984 ton/person		√

\* Excluding the data on the water usage at Saerom Building



DMA and Indicators		Page	Omissions	Coverage	
Emissions	Generic DMA	50,51		√	
	G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1)		√	
	G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)	97		√
	G4-EN17	Other indirect greenhouse gas (GHG) emissions (Scope 3)	Not managed separately		√
	G4-EN18	Greenhouse gas (GHG) emissions intensity	Building energy reported in energy intensity		√
	G4-EN19	Reduction of greenhouse gas (GHG) emissions	51		√
	G4-CRE3	Greenhouse Gas Emissions Intensity From Buildings	1.073 tCO <sub>2</sub> /person		√
	G4-CRE4	Greenhouse Gas Emissions Intensity From New Construction And Redevelopment Activity	Not subject to management		√
Effluents and Waste	Generic DMA	59		√	
	G4-EN23	Total weight of waste by type and disposal method	97		√
Compliance	Generic DMA	58		√	
	G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	58		√

**Category: Social**

Sub-Category: Labor Practice and Decent Work		Page	Omissions	Coverage	
Employment	Generic DMA	62		√	
	G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender, and region	96		√
	G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	65		√
	G4-LA3	Return to work and retention rates after parental leave, by gender	65,96		√
Labor/ Management Relations	Generic DMA	52,53		√	
	G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements	52		√
Occupational Health and Safety	Generic DMA	48,49		√	
	G4-LA5	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	61		√
	G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender	61		√
	G4-CRE6	Percentage Of The Organization Operating In Verified Compliance With An Internationally Recognized Health And Safety Management System	60		√
	G4-LA7	Workers with high incidence or high risk of diseases related to their occupation	48,49,60,61		√
	G4-LA8	Health and safety topics covered in formal agreements with trade unions	61		√
	Training and Education	Generic DMA	63,64		√
		G4-LA9	Average hours of training per year per employee by gender, and by employee category	64	
G4-LA10		Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	65		√
G4-LA11		Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	96.9%		√

Sub-Category: Human Rights		Page	Omissions	Coverage
Non-discrimination	Generic DMA	62		√
	G4-HR3	Total number of incidents of discrimination and corrective actions taken	No incidents of discrimination occurred	
Human Rights Grievance Mechanisms	Generic DMA	52,53		√
	G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	53	

Sub-Category: Society		Page	Omissions	Coverage	
Local Communities	Generic DMA	54,55		√	
	G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	54,55		√
	G4-SO2	Operations with significant actual or potential negative impacts on local communities	*Refer to the notes		√

Sub-Category: Product Responsibility		Page	Omissions	Coverage	
Product and Service Labeling	G4-PR3	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	Not applicable		√
	G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes	Not applicable		√
	G4-PR5	Results of surveys measuring customer satisfaction	72		√
	G4-CRE8	Type And Number Of Sustainability Certification, Rating And Labeling Schemes For New Construction, Management, Occupation And Redevelopment	59		√
Customer Privacy	G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	72		√

\* Safety management process for Lotte World Tower was significantly strengthened. For most of the issues including sink hole occurrence, lower water surface of Seokcheon Lake and controversial cracks on the floor and ceiling were identified to be safe and secure as a result of stringent and objective verification of domestic and internal experts. LOTTE E&C will ensure Lotte World Tower to be Seoul's iconic landmark building.

# Memberships and Participating Associations / Awards

Associations and Memberships		
Association		
Construction Association of Korea	Maeil Business Newspaper S.E.L Club	Korea Housing Association
Architectural Institute of Korea	The Korea Construction New- Technology Association	Korean Geotechnical Society
The Korea Chamber of Commerce & Industry	The Korea Institute of Building Construction	Korea Railway Construction Engineering Association
Society of Air-Conditioning and Refrigerating Engineers of Korea	Korean National Committee on Irrigation and Drainage	The Korea Railway Association
The Korean Institute of Electrical Engineers	Korea Road Association	Korea Concrete Institute
Korean Society of Civil Engineers	Korea Fire Safety Association	Korean Tunneling and Underground Space Association
The Federation of Korean Industries	Korea Electrical Contractors Association	International Contractors Association of Korea
Construction Safety Manager Committee	Korea Information Communication Contractors Association	American Concrete Institute (ACI)

## 2014 Awards & Prizes

Date	Award	Organization
Mar. 25	Commendation on the Day of Construction Technologies	Minister of Land, Infrastructure and Transport
May 1	Commendation on the Labor Day	Chairman of the Environment and Labor Committee at the National Assembly
Jun. 18	Received the industrial commendation on the Construction Day	President of the Republic of Korea
Jul. 10	Received the grand prize from Korea Service Awards (Apartment category)	Korean Standards Association
Aug. 28	Commendation for contributing to the sewage treatment and usage project	Minister of Environment
Nov. 6	A case of excellence in the Architecture Category at the Construction Technology Research	Chairman of Korea Federation Of Construction Contractors
Nov. 22	Top Excellence Prize in the Social Contribution Category at the Culture and Art Contest	Chairman of the Environment and Labor Committee
Nov. 22	Commendation at the Art Festival for Child Welfare organized by Seoul Metropolitan Government	Mayor of Seoul

# Overseas Branch Offices and Subsidiaries

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<b>LOTTE E&amp;C BEIJING CO.,LTD (China)</b> Room 601, Guohang Building, No.36, Xiaoyun Road, Chaoyang District, Beijing, China (Postal Code: 100027) +86-10-8447-5106	<b>Branch Office, Pakistan</b> House No. 2, Street No. 18, F-7/2, Islamabad, Pakistan (Postal Code: 44000) +92-51-843-5288	<b>Branch Office, Moscow, Russia</b> 10th floor, Profsoyuznaya Street, 65, Build.1, Moscow, Russia +7-495-280-3396



## Information on Participants in the Report

Type	Department	Participant
Supervised by	Secretariat for Sustainability Management and Development (Competitiveness and Innovation Team, Strategic Planning Department)	Gi Beom Nam
Ethical Management	Ethical Management Department	Min Kyu Lee
Environmental & Safety Management	Safety and Environment Management Team, HSE Department	Tae Wan Kim Chung Hwan Han
	Technology Research Institute	Jin Woo Kim
	Design Research Institute, Housing Division	Joon Young Lee
Customer Value Management	CS Department, Housing Division	Seong Ku Seo
	Construction Management Department of Housing, Housing Division	Young Jin Moon
Win-Win Management	Marketing Department, Housing Division	Young Ju Seo
	Procurement Planning Team, Sourcing and Procurement Division	Hee Sung Park
Social Sharing Management	Competitiveness and Innovation Team, Strategic Planning Department	Sang Wook Bae
Talent Management	HR Team, HR Department	Jin Hyung Lee
	Welfare Team, HR Department	Je Hoon Yoo
Housing	Housing Planning Team, Housing Division	Bo Yeon Kim
Architecture	Architectural Planning Team, Architecture Division	Cheol Hwan Yoon
Plants	Plant Planning Team, Plant Division	Wan Sik Lee
Civil Works	Civil Planning Team, Civil Engineering Division	Hwan Chel Kim
Overseas Business	Overseas Planning Team, Overseas Business Division	Hong Jae Rho
	Overseas Civil Team, Civil Engineering Division	Ka Yung Kim So Yeon Lee
English revision by	Overseas Business Development Department, Plant Business Division	Calvin Lee
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