

Think new,
Go global!



About This Report

Summary

Reporting Period and Scope

The Lotte E&C Sustainability Report 2013 is the company's first report of its kind. This report covers the period from January 1, 2012 to December 31, 2012 for sustainability and management activities. The report, where necessary for trend analysis, includes qualitative data from the past three years, from January 1, 2010 to December 31, 2012 and various data includes activities and results after 2012. This report covers our 235 domestic sites as well as Company Headquarters.

Reporting Standards

This report was prepared in accordance with the guidelines of the Global Reporting Initiative (GRI) G3.1 and ISO 26000. Related information is described in the GRI Index on pages 79-82.

Reporting Assurance

This report was assured independently by a third-party entity to raise the level of credibility and reliability. The related information on assurance is described in the assurance report on pages 77-78.

GRI G3.1 Guidelines Application Level

The Lotte E&C Sustainability Report 2013 adheres to the current Guidelines (G3.1) of the Global Reporting Initiative (GRI) including the CRE final version of the GRI Construction and Real Estate Sector Supplement (CRE). Conformity of the information provided with the requirement profiles has been checked by GRI and the report classified as Application Level A+.

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The cover of this report represents Lotte E&C's determination for sustainable management under the vision of "Think new, Go global," and to become one of "Asia's Top 10" global corporations based on the creative mindset of its members.

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**This is the Lotte E&C's
first Sustainability Report.**

CEO Message

“We enrich people’s lives by providing superior products and services that our customers love and trust.”

Greetings, stakeholders

It is my greatest pleasure to present Lotte E&C’s first Sustainability Report to you.

All of us at Lotte E&C strive to realize the vision of becoming one of “Asia’s Top 10” companies, with the goal of obtaining contracts new orders of KRW 18 trillion, as well as a sales revenue of KRW 13 trillion in 2018. We believe it is our mission, and also our pride to enrich people’s lives by providing superior products and services that our customers love and trust. At the same time, being aware that meeting social and ethical responsibilities is as important as furthering economic performance, we try our best to become a company respected by our stakeholders by accomplishing a good balance between quantitative and qualitative growth.

To this end, Lotte E&C established the Sustainability Management Committee under the supervision of the CEO and created six divisions under the committee, which includes environment, ethical management and shared growth, to communicate with stakeholders and respond to their needs, while fulfilling the responsibilities as a corporate member of society.

LOTTE E&C pursues customer satisfaction, through which we share growth with customers by maximizing customer values. We always try to think and act in the customer’s viewpoint and listen to the customer’s voice, through communication channels. We also reflect them to our management decisions. In addition, we deliver the best value to our employees-our future and the most valuable assets. By establishing a corporate culture that respects diversity with the principle of creativity and autonomy. We aim to provide a working environment where employees can enjoy work and realize a balance between work and personal life.

We bear in mind the importance of fostering Win-Win relationships with our partners. We also apply this principle to our management activities and share economic results with them. We will continue to endorse this Win-Win management principle and lead the construction industry through implementing a variety of initiatives, such as providing financial & technical support, sharing results, offering education programs, and not to mention adhering to fair trade principles.



On the social contribution front, we will fulfill our responsibilities as a corporate citizen and contribute to creating a happier society where we grow and dream together with our less fortunate neighbors through a wide range of Corporate Social Responsibility activities, including talent donation and community service programs.

In the environmental sense, Lotte E&C will create green values by establishing a green vision, 'Green Life 2018 in LOTTE', and pursue environment management proactively by going a step beyond merely complying with environmental regulations in our daily business.

We are well aware that corporate ethics is not a choice, but a core element for sustainable growth. Lotte E&C will create a transparent business environment based on our core principles by instilling ethics into the employee's way of doing business, through our code of ethics, pledge of ethics, and a systematic ethics education and training.

We will not rest on our laurels and continue our efforts to deliver the best value to our customers, to create a more prosperous world where mankind and nature may co-exist happily and thrive together.

Thank you.

2013.07
President & CEO
Park Chang Kyoo

Company Profile

Lotte E&C is a general contractor that has been providing integrated construction services for half a century since its foundation in 1959, with main business areas including: civil works, the building of social infrastructure such as subway systems, highways, and bridges; architecture, the creation of various living spaces such as business and commercial facilities; housing, represented by Lotte Castle, our premium brand of apartment units; project planning & development, the creation of future cities; plant projects, which meet different needs of business sites; and numerous other overseas projects. Armed with accumulated know-how, latest technology, limitless creativity, an adventurous spirit, and nature-friendly technology, Lotte E&C is creating new value in every corner of the world.

General Information

Corporate Name	Lotte Engineering & Construction (Lotte E&C)
Date of Establishment	February 3, 1959
Representative	Park Chang Kyoo
Head Office	50-2 Jamwon-dong, Seocho-gu, Seoul, Korea
Main Businesses	Housing, architecture, civil engineering, and plant
Credit Ratings	A+ by Korea Ratings (as of Jan. 30. 2013)

Overseas Branches

Vietnam	Vietnam Branch Office (Ho Chi Mihn)
Russia	Moscow Branch Office
Japan	Tokyo Branch Office
Saudi Arabia	Saudi Arabia Branch Office
Indonesia	Jakarta Representative Office
Malaysia	Kuala Lumpur Branch Office
UAE	Abu Dhabi Branch Office
Pakistan	Pakistan Liaison Office
Australia	Australia Branch Office
Jordan	Amman Branch Office

Overseas Subsidiaries

China	LOTTE E&C (BEIJING)CO.,LTD
China	LOTTE E&C Shenyang CO.,LTD
Mongolia	LOTTE Engineering Construction Mongolia LLC
India	LOTTE E&C India Pvt. Ltd
Uzbekistan	UCA Lotte E&C Co., Ltd
Libya	LKCE (Libyan Korean Construction and Engineering JV)
Vietnam	LOTTE E&C Vietnam Co., Ltd
Malaysia	LOTTE E&C Malaysia Sdn. Bhd.

History

1959-1977

Founding and establishing foundation

- Renamed the company as Pyoung Hwa Construction, Inc.
- Merged with Dae Young Construction, Inc.
- Acquired a License for public works and construction
- Earned a license to pave roads
- Completed Gyeongbu Expressway from Seoul to Busan
- Won a road construction project in Saudi Arabia
- Earned an electric & telecom construction license
- Acquired a license to build houses
- Acquired a license for overseas construction business

1978-1986

Lotte E&C's Growth

- Earned an approval to receive foreign investment in integrated construction business
- Won an industrial contribution award for completing the Dongbuk dam
- Opened the Lotte E&C R&D Institute
- Won Presidential citation for completing Sapkyo Stream dike



1988-1997

Lotte E&C on Fast Growth Path

- Won the Steel Tower Industrial Award
- Secured the overseas integrated construction business license
- Received the Presidential Award for completing Guro 3 railroad lines
- Opened subsidiaries in Tokyo, Beijing, and Vietnam
- Earned the ISO 9001 Certification
- Won the Gold Industrial Contribution Award

Overcoming Crisis and the Second Expansion

- Selected as an excellent construction contractor by LH Corp.
- Received the Stone Tower industrial contribution award for completing Nok San National Industrial Complex
- Achieved new orders of KRW 1 trillion
- Received the Steel Tower industrial contribution award
- Won the Korea Management Association service award (Apartment Category)
- 2001 Korea Housing Culture Award
- Achieved the sales revenue of KRW 1 trillion
- Won the Best Brand award
- Acquired Korea's first Construction KOSHA 2000 program certification
- Received the Presidential Award for completing West Coast Highway and Gwangan Grand Bridge

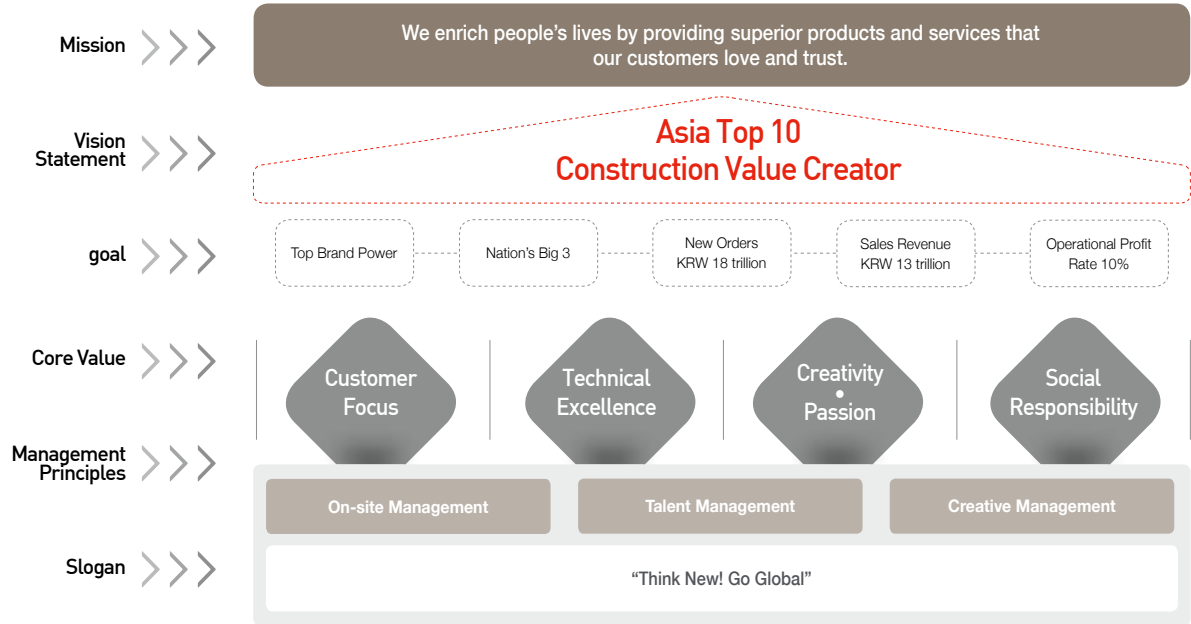
New Vision

- Received the Zero-Accident Award from the Japanese Ministry of Health, Labour and Welfare
- Won the Technological Innovation Management Award
- Won the 1st Construction Innovation Award sponsored by the Ministry of Construction and Transportation
- Opened subsidiaries in Moscow and Abu Dhabi
- Established local corporations in Libya, India, Vietnam, and Uzbekistan
- Received the Silver Industrial Award
- Won the Best Quality Award selected by women consumers
- Achieved new orders of KRW 10 trillion
- Ranked first at the Korea Service Award (for 11 consecutive years in the Apartment category)
- Won the Gold Industrial Contribution Award
- Received the Presidential Award at the National Quality Management Convention (Group)

Vision and Strategies

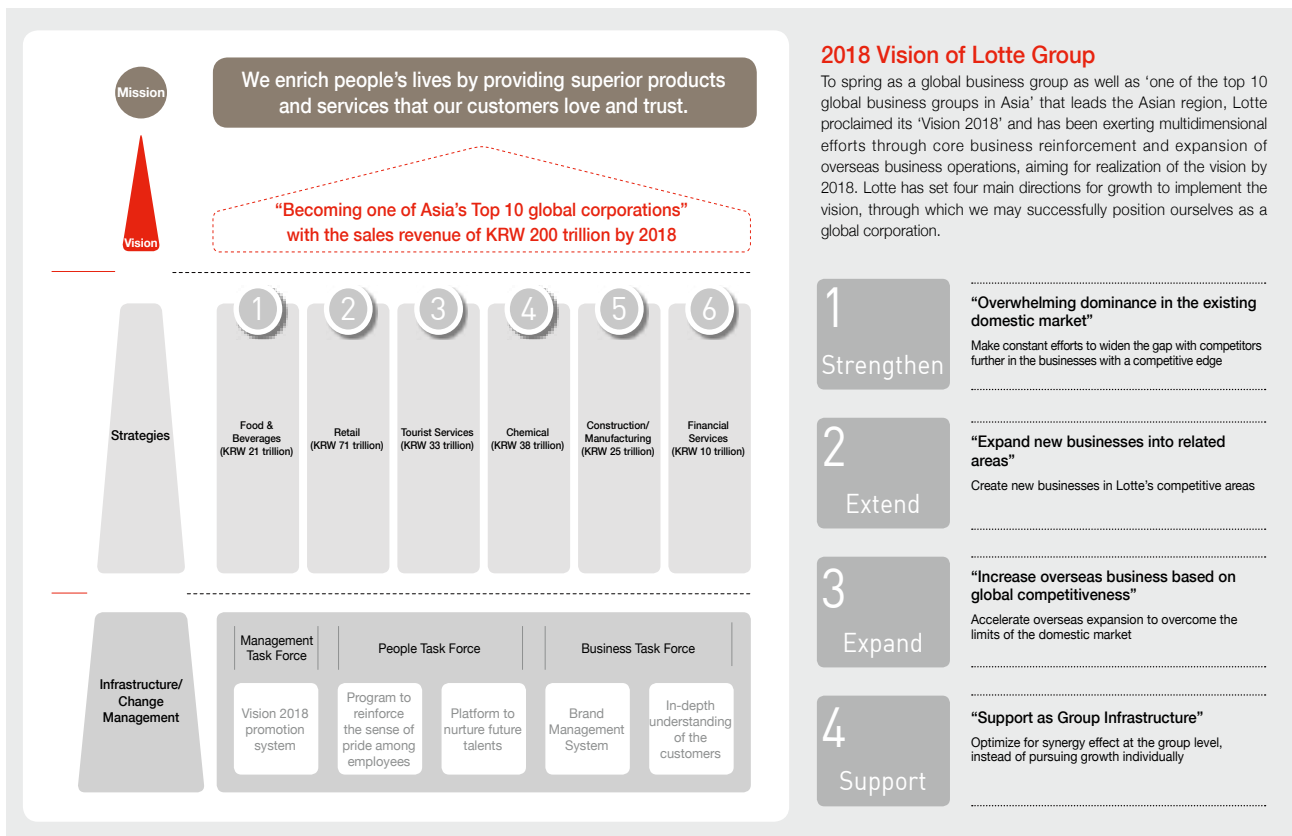
Asia Top 10 Vision 2018

Under the vision of becoming one of "Asia's Top 10 Construction value Creators" by 2018, Lotte E&C is committed to delivering the best value to customers and contributing to society. We are creating value as a top-class corporation based on our incessant technological development, bold management innovation, customer-centered quality improvement, and differentiated competitiveness.



Asia Top 10 Construction Value Creator

Lotte E&C has set the management goal of becoming one of Asia's Top 10 global corporations. We will devote ourselves to creating value for customers and society as well as delivering economic results with our dominant market presence.



Core Values

The 4 Core Values we pursue are the basis on which we implement our corporate mission and goals, as well as values for our stakeholders. We will lay the foundation for sustainable growth with such core values, which are the following; customer focus, creativity, passion, technical excellence, and social contribution.



Management Principles

Lotte E&C strives to bring about innovation to realize Vision 2018, centered on on-site management, talent management, and creative management.



Vision and Strategies for sustainability Management

Lotte E&C has set a vision and strategies for sustainability management to lay the groundworks for becoming a corporation that will last for a century. We commit ourselves to fulfilling the responsibilities of a corporate citizen by creating stakeholder values, harmonizing with society and nature, and promoting social development in areas such as HR, ethics, HSE, shared growth, customer satisfaction, and social contribution. We are creating sustainable values for society as well as corporations through a wide spectrum of CSR programs.



Stakeholder Engagement

Definition of Stakeholders and Communication

Stakeholders

Lotte E&C defines “stakeholders” broadly to include group companies with legal, financial, and management responsibilities, customers, media, labor union, NGOs and pressure groups, communities, competitors, environment and academia as well as main groups giving and receiving influence from our management activities. Major stakeholders are divided into employees, customers, communities, and suppliers considering their roles, contribution, and relationship with the company.

Stakeholder Engagement

Lotte E&C runs diverse communication channels to reflect the various issues and concerns of major stakeholders to our sustainability management activities. We are operating a Happy Call service and a webzine to raise customer satisfaction and diversify communication channels to effectively reflect customer opinions to our general business activities. Simultaneously we also operate portals and host social gatherings to nurture a Win-Win relationship with suppliers. Also, we hold labor-management councils on a regular basis and offer family programs to create a healthier organizational culture.

Major stakeholders and communication channels

Stakeholder	Main Issues	Communication Channels	page
Customers	✓ Customer satisfaction management, quality management	Happy Call, Webzine in homepages of Castle and Lotte E&C	48-51
Suppliers	✓ Shared growth, communication with suppliers	Supplier portal (http://partner.lottenc.com), gatherings	52-57
Employees	✓ Nurturing global talents, fair assessment and reward system, improving welfare and working conditions	Labor-management council, company intranet, workshops	62-69
community	✓ Strengthening CSR activities, promoting employee volunteering	Partnership activities with each group, Employees Volunteering Activities	70-73



Stakeholder Interviews

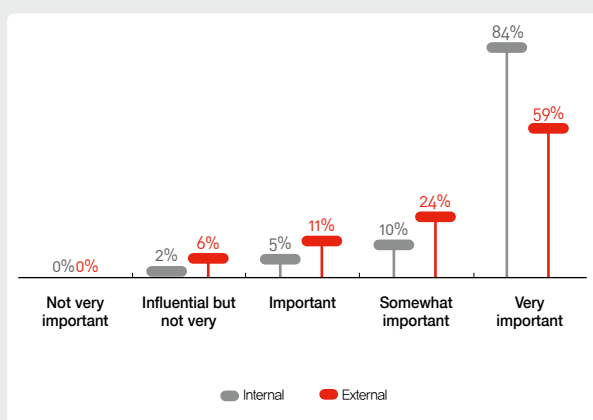
Lotte E&C conducted surveys and interviews with our major stakeholders to understand their concerns, reflect them in this sustainability report and our overall management decisions.

Main Areas	Interviewees	Opinions Raised	Type of Stakeholder	page
HSE	Prof. Kim Yong Seong Kookmin University	<ul style="list-style-type: none"> Promote the development of green technology Pursue sustainable construction methods 	Academia	34
CS Management	Kim Eun Joo Resident of Lotte Castle	<ul style="list-style-type: none"> Lotte E&C's customer satisfaction activities Continue communication with customers 	Customer	49
Shared Growth	Park Jun Seok, President of Asia Environment Landscape	<ul style="list-style-type: none"> Continue efforts for shared growth Establish a Win-Win relationship with suppliers 	Supplier	54
Ethics Management	Kim Dong Soo Director of the KPC Sustainability Management Center (SMC)	<ul style="list-style-type: none"> Implement ethical management diagnosis system Continue pursuit of transparency in ethics management 	Supplier	60
Employees	Lee Sang Han, Chief Saemangeum Dongjin construction site	<ul style="list-style-type: none"> Comments after participating in family-friendly programs to raise employee satisfaction 	Employee	69
Social Contribution	Jeong Sang Hee, Manager The Welfare Dept. of Seodaemun-gu	<ul style="list-style-type: none"> Conduct strategic CSR activities reflecting the nature of construction industry 	Community	72

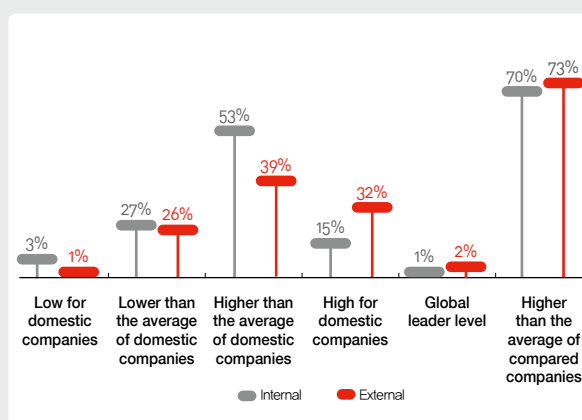
Stakeholder Survey

Lotte E&C conducted a stakeholder survey to determine internal and external stakeholders' concerns, the level of sustainability management of the company, and the level of awareness about sustainability management. According to the findings, more than 70 percent of the respondents answered that our sustainability management level is higher than the average of domestic corporations. Furthermore, 84 percent of internal stakeholders said they believe that sustainability management is relevant to current management issues. Many stakeholders identified coexistence, safety, health management and ethics management as imperative issues for Lotte E&C to solve in order to thrive in the future.

Q. How relevant do you think sustainability management is to current management issues?



Q. What do you think of Lotte E&C's sustainability management level?



*Survey respondents : 1,156 participants including customers, suppliers, employees/ Period : about 2 weeks from March 20, 2013/ Subjects : 9 divisions including economy, society, and environment

Materiality Test

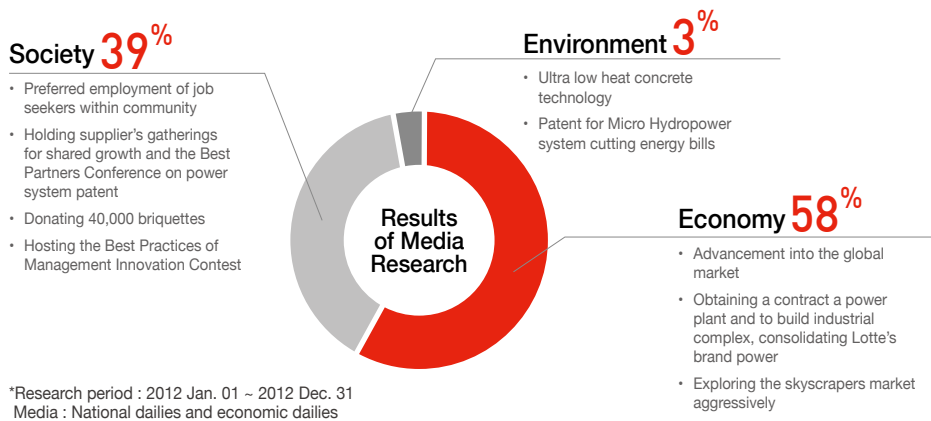
Lotte E&C has conducted a materiality test to discuss sustainability management issues and identified the priorities that reflect both stakeholder interests and corporate management concerns.

Materiality Test Process

Lotte E&C conducted a 3-step assessment process to select material issues as follows.

- Step 1. Creating an issue pool and drawing subjects**
 First, Lotte E&C analyzed trends in domestic and overseas construction industries and reviewed global standards such as the GRI, ISO26000, and UNGC to identify key sustainability management issues and created an issue pool. According to the organized pool, risk assessment on the supply chain, human rights and labor, remuneration for top executives and the Board of Directors were highlighted. Finally, 39 issues most relevant to Lotte E&C, including the aforementioned issues, have been selected.
- Step 2. Evaluating key issues**
 The assessment process is composed of four steps, including both internal and external evaluation. The process includes various aspects; surveys to assess stakeholder concerns directly; evaluation on global issues; media assessment; short-, mid-, and long-term corporate performance evaluations. For instance, media research—a critical element of external assessment—reconfirmed Lotte E&C's performance and a favorable corporate image as 92% of news release reported on positive aspects of the company, mainly economic performances and management activities.

Results of Media Research*



Materiality Test Process

Step 1. Creating an issue pool and drawing subjects

- Analyze industrial trends in domestic and overseas construction business and review global standards such as the GRI and ISO26000, to create an issue pool
- Select 39 issues relevant to Lotte E&C

Step 2. Evaluating key issues

- Perform the 4-step materiality assessment

Direct short-term financial impact

Relevance to the company such as management strategy

Common issues of the industry, international standardization recommendation, media issues

Stakeholder survey

- Conduct evaluation by internal and external stakeholders on issues drawn from the analysis of sustainability trend (employees : 1,055 persons, external stakeholders : 101 persons)

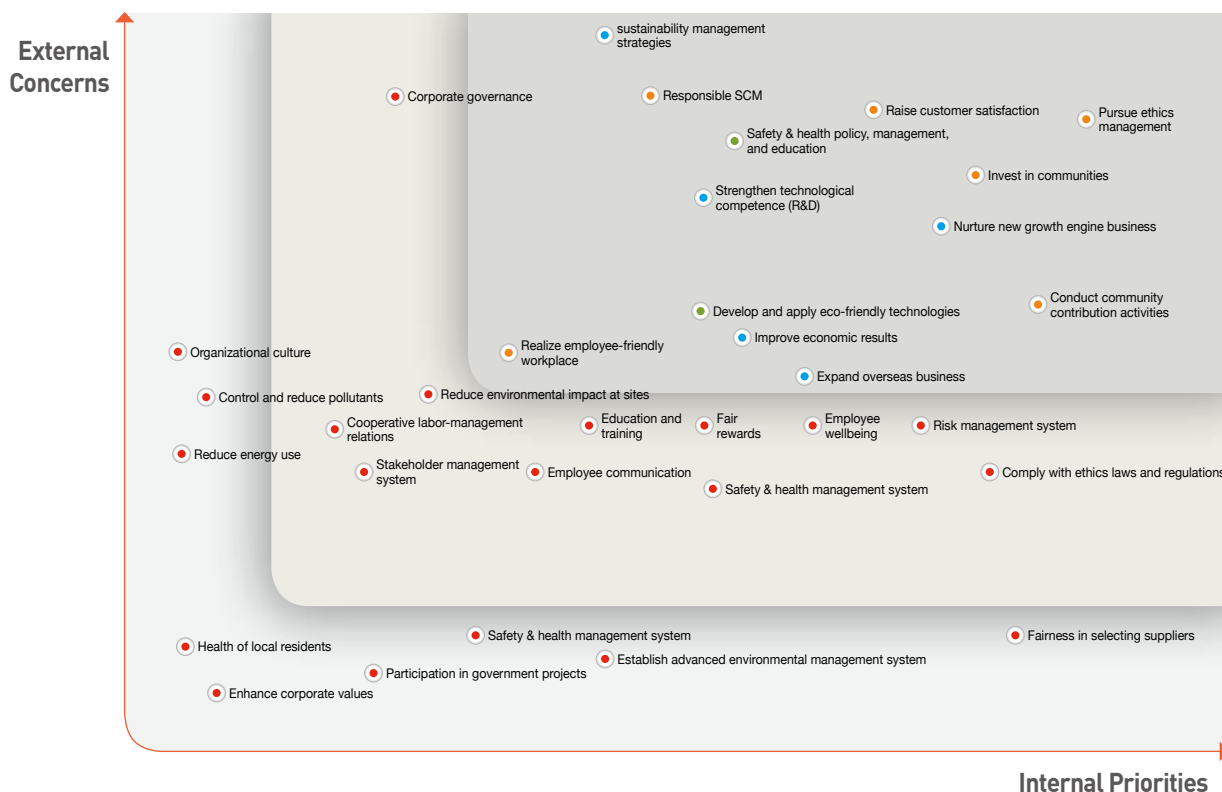
Step 3. Selecting Core Issues

- Determine what to report after the final analysis of materiality issues with the matrix of internal and external viewpoints

Step 3. Selecting Core Issues

Lotte E&C conducted a materiality test to identify its key sustainability management issues that stakeholders consider important, and has determined what to report, through a matrix analysis of internal and external view-points. Major issues drawn from the material test are covered in the order of priority, according to the importance and feasibility.

Map of Materiality Issues



Areas	Issues	Page
Economic Performance Enhancement	sustainability management strategies	9
	Improving economic results	19
	Expanding overseas business	21
	Nurturing new growth engine business	20, 21
	Strengthening technological competence (R&D)	22, 23
Sustainable Social and Environmental Value Enhancement	Developing and applying eco-friendly technologies	31-36
	Safety & health policy, management, and education	44-47
	Raising customer satisfaction	50-51
	Responsible SCM	52-57
	Pursuing ethics management	58-61
	Realizing employee-friendly workplace	68-69
	Continuing community contribution activities	70-73

Build a Greater Future

Lotte E&C is focusing its resources on achieving its vision of becoming one of "Asia's Top 10 Construction Value Creators" through continuous technological innovation and efforts to enhance value.



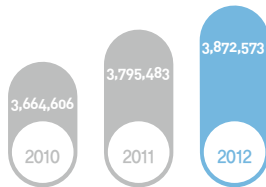


Jordan-Al Qatrana Power Project
Location : Al Qatrana, Jordan
Capacity : 377 MW, GTG (supplied by SIEMENS) : 127 MW x 2 Units,
STG (supplied by SKODA) : 123 MW x 1 Unit

Main Business

Sales

Unit : million KRW



Lotte E&C has made consistent efforts for technological development and innovation ever since its foundation in 1959, in order to deliver the highest quality products and services. Our goal is to become a top-class integrated construction company encompassing a full variety of construction projects ranging from residential and living spaces such as apartment units, hotels, and department stores, to social infrastructure including roads, bridges, and plant. As a result of our management efforts, Lotte E&C posted a revenue of KRW 3.9 trillion in 2012, a 2 per cent increase from last year's figure.

Overseas Works

Overseas Business

Lotte E&C has been raising the global standing of Korea's construction industry in a broad range of fields with its excellence in construction and technological innovation since the Company's initial entry into the global market, which started with a project in Saudi Arabia in the early 1980s. We identified V.R.I.Cs* as major strategic countries in line with Lotte Group's overseas expansion strategies. Using our extended projects that global network, we are expanding our business areas into development projects (such as new city development endorse cutting-edge technologies with nature), BOT** projects, and development of complexes, as well as continuing our conventional subcontract projects, such as civil works, architecture, and plant.

* V.R.I.Cs : Vietnam, Russia, Indonesia, China

** BOT : Build-Own-Operate-Transfer

For Sustainability

As internal and external conditions are getting more intense by the day, we have a challenging road ahead of us, with difficulties securing orders and profitability. In face of these obstacles, Lotte E&C continues efforts to obtain orders, taking full advantage of its strengths; brand value and distinguished project experience in the domestic market, risk minimization strategy through advancing into new markets along with other group companies, good credit rating, and solid financial state. At the same time, we are managing risks more stably by diversifying our business portfolio to include development projects and technological services, breaking the existing business scheme while focusing on construction projects within the group. Also, we are working to secure infrastructure projects—skyscrapers, hotels, hospitals, sewage system, ports, and roads—in partnership with local subcontractors while expanding business in the existing markets as well.



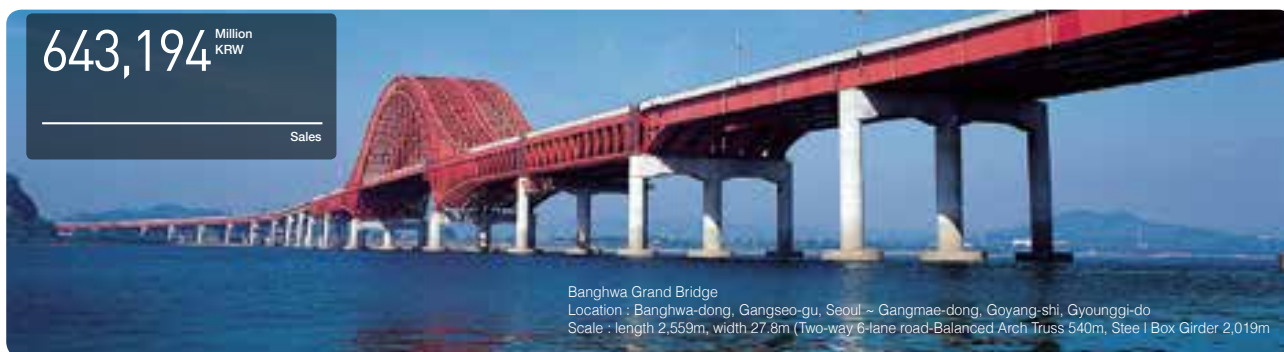
Civil Works

Civil Works

Lotte E&C has been playing a leading role as a driving force for national economic growth by successfully helping to allow for balanced development of the nation by building expressways and railroads, which are the nation's main artery roads, industrial complex, and ports. Also, we are contributing to the nation's technological competence and credibility by completing construction projects of roads, industrial complexes, and railways in many countries including Japan, Saudi Arabia, Bangladesh, and Vietnam.

For Sustainability

Due to institutional changes and a variety of new ordering methods in the civil works business, general management skill – on top of construction competence-has emerged as key competitiveness. Against this backdrop, we have established the Dynamic Organization System to promptly respond to changes, raise competitiveness and profitability. Also, we focus our energy on strengthening core competence of individual employees through a wide range of educational programs to nurture talents. Lotte E&C is consolidating its position as a total solution provider by expanding business from construction to the entire value chain of “planning-engineering-construction-maintenance.” Our strategic business to become a global leader includes new growth engines-overseas hydro power and water treatment projects. Also we are aggressively developing new technologies and winning orders for high-tech projects such as green infrastructure business/ intelligent transportation network/ Great Train Express and underground tunnels.



Housing Works

Housing Works

Lotte E&C is setting the standards for truly elegant residences through its “Lotte Castle” brand, a synonym for premium apartment units. We had a challenging year with concerns regarding the global recession in the wake of the European financial crisis in 2012 and uncertainties in the international political arena. However, there have been signs of recovery in the crisis and the U.S. economy. Domestically, the real estate market is reviving from depression with the local housing market booming and the government's deregulation efforts.

For Sustainability

Lotte E&C is making best efforts to pave the road for responding to market changes by establishing stable business plans and financial plans, by managing business through risk management, and by developing new businesses and products. Lotte E&C boasts its special knowhow in obtaining orders, project management, and construction practices in the reconstruction and redevelopment business. In outsourcing and in-house projects, we pursue sustainable growth with the help of funding based on better credit than our competitors. With success of Lotte Castle, we are consolidating our status as a provider of luxury apartment units, holding a dominant position over other companies.



Building Works

Building Works

Lotte E&C's architectural works—represented by Lotte World, Lotte Department Store, and Lotte Hotel—are the outcome of our constant research on humanity and the environment.

For Sustainability

As it is increasingly tough to procure funding through project financing (PF) in the financial sector, and with more construction projects adopting the lowest bidding system in the midst of growing competition, we are faced with difficulty in securing a stable supply of projects. However, we will take full advantage of our strengths such as brand value, consistent new orders from group companies, commercial facilities, renewal projects, skyscraper-related technology, and ample human resources to receive orders stably and improve profitability. In addition, as the Group advances into the global market, increased investment in construction is expected to lay groundwork for Lotte E&C to become a top-tier company. Also, we will be able to raise our status in technological development by securing technical competence and talented personnel in the skyscraper construction arena through completing the Lotte World Tower project.



Plant Works

Plant Works

Lotte E&C is advancing into the Southeast Asian and Middle East regions to expand its plant businesses, including power, chemical, and environment based plant works. It will leverage on its experience of building POSCO's Gwangyang Steel Works, the largest facility of its kind in the world. We are focusing our resources on the overseas plant projects in cooperation with the Group companies.

For Sustainability

Lotte E&C has successfully completed a number of power plants, and particularly renovated the Seo-Incheon combined cycle power plant (capacity of 2,000MW) into a cogeneration plant to provide energy to the Cheongna Economic Free Zone and Gimpo New City efficiently and economically. Also, we were able to successfully complete the Al Qatrana Power Plant project in Jordan, which accounts for 15 percent of the nation's power demand, and are currently building the Al Manakher Power Plant, the world's largest diesel power station. Domestically, we have positioned ourselves as a leader in the power and energy industry by carrying out projects in Chung-nam province and Daegu. Meanwhile, we are also stepping up our efforts in alternative energy projects such as the Garolim Tidal Power Plant project. In the chemical engineering division, we are currently engaged in petrochemical plant projects in Yeosu, Daesan, Ulsan and Malaysia, in cooperation with Lotte Chemical.



Economic Performance

Lotte E&C has pursued growth, profitability, and stability by nurturing new growth drivers and improving financial health, despite the challenges in 2012 pertaining to persistent deceleration in the construction industry.

Growth

Lotte E&C's housing, architecture, civil works, plant, and overseas projects. We posted a 2 percent increase in sales business portfolio encompasses through aggressive management activities. The amount of received orders, a leading indicator of sales, slightly decreased in the overseas market but increased 10 percent year-on-year as a whole due to the growth of public works projects domestically. We are also expanding in our architectural business by increasing non-group projects by 173 percent in various areas, along with securing a stable supply of Group projects.

Profitability

Lotte E&C was able to improve profitability with a gross profit at a rate of 16% and operational profit at a rate of 48% by constantly saving costs in this harsh economic environment. Cost rate—a key element in determining the profitability of the construction industry—has improved in all the business areas except plant, which remained similar to the level of the previous year.

Stability

Lotte E&C has been exerting its efforts to reduce debt and liabilities to pursue sound financial health instead of pure monetary growth ever since the global financial crisis. As a result of such efforts, we were able to achieve solid management performance; the ratio of total debt and liabilities dropped 14% and 20% respectively year-on-year while the debt ratio (128.53%), current ratio(192.57%), and borrowings and bonds payable ratio (30.26%) continuously improved. On the other hand, Lotte E&C received an A+ rating for corporate bonds and an A2+ rating for commercial paper from a domestic credit rating agency as of the end of 2012. This represents a company's high capability to pay principals and repay a loan in time. We will continue to improve our external credit through a more stable management.

Economic Performance

Units : million KRW

Category		2010	2011	2012
I/S	Sales (Division)	3,664,606	3,795,483 (3,771,268)	3,872,573 (3,836,736)
	Gross profit	340,913	348,801	404,131
	Operational profit	137,049	120,842	178,847
	Pretax income	12,509	38,026	24,157
	Current period net income	(86,911)	27,798	15,285
B/S	Asset	5,693,635	5,754,148	5,303,415
	Liabilities	3,466,422	3,445,029	2,982,763
	Capital	2,227,213	2,309,119	2,320,652
Order Backlogs	New Order Backlogs	7,120,000	4,966,100	5,472,000
	Domestic Order Backlogs	6,930,300	4,205,800	4,774,100
	Global Order Backlogs	189,700	760,300	697,900



Automatic LPG Storage Facilities Project
Location : Zarka, Jordan
Capacity : 2,000 ton LPG tank 4 units and appurtenant work

Growth Strategy

Lotte E&C continues conducting innovation activities to seize opportunities to grow and multiply economic value in this ever-changing market environment. Dealing with market changes, need for operational efficiency, and opportunities, we have selected new growth-engine businesses and have been executing them.

New Growth Drivers of the Plant Business

Lotte E&C identified coal-fired power plants, IPP (Independent Power Plants), renewable energy supply, and engineering competence as our new growth drivers to make timely responses to changing market conditions, such as rising oil price and increasing demand for electricity in emerging economies. Primarily, coal-fired power plants-a main base load along with nuclear power plants-is a business that requires core technological competence. We are making constant efforts to secure competence in the area and advance into overseas markets. As the power plant market expands from EPC* to development and O&M**, we may potentially face opportunities for growth in the construction market. Lotte E&C is diversifying its business portfolio by actively engaging in the power plant market and trying to reduce risks from internal and external business environments. Also, we plan to enter the fuel supply industry including pellet production and supply as the renewable energy market is growing, according to the nation's RPS*** policy.

* EPC : Engineering, Procurement, and Construction

** O&M : Operation & Maintenance

*** RPS : Renewable Portfolio Standard

Not only that, we are working towards bolstering our engineering competence to lay the cornerstone of growth in the increasingly competitive plant business. It is expected to bring more new orders and sales for the power plant division, paving the road for Lotte E&C to enter the chemical engineering plant market.



What kind of effort is Lotte E&C making to strengthen its competitiveness to win orders?

Lotte E&C is establishing a solid infrastructure for receiving orders by nurturing talent and streamlining the organization by division. First, we continuously find and nurture talent with strong technological competence in each business division, specialized in each area, especially in skyscrapers and estimation. Also, we hired more sales professionals to deal with orders for detached house projects and others more effectively. At the same time, we have formed a cooperative system with local business partners to conduct overseas projects in a more systematic manner while nurturing experts for each country and beefing up sales force at local branches and corporations to stay well-informed and win orders more effectively in the global market. Along with the efforts to bolster human resources we are establishing infrastructure on whose basis we will create departments in charge of remodeling/ FM and orders for business rental housing projects to implement new growth driving business plans systematically.

New Growth Drivers of the Architectural and Housing Business

The architectural and housing business are vulnerable to economic changes in and outside of the country as well as the government's real estate policy. Lotte E&C is conducting new growth driving businesses based on such characteristics with past achievements in the existing business. First, as the end of the 20 year-term is approaching since residents first moved into the apartment in new cities, demand for repairing and remodeling of old buildings are expected to grow. Lotte E&C is getting prepared for the potential demands to create a stable profit structure by securing capabilities and technologies to conduct remodeling and reforming projects in connection with the BTL (Build-Transfer-Lease) business. In addition to residential facilities, remodeling of outworn office buildings, underground malls, and markets for economic and environmental purposes increasing the value, profitability, and operational efficiency of the buildings are taking place. Lotte E&C is starting the facility management (FM) business for older buildings along with remodeling of non-residential facilities based on its construction project experience, in expectation of generating a synergy effect.

Growth Drivers Considering the Social Environment

As the housing paradigm is going through changes with increasing demand for environmental-friendly housing and one or two-person households, BLT and the house building business are increasing. Lotte E&C is in the process to reduce risks of the conventional construction and housing business, which is susceptible to the economy, through BLT projects as well as gaining competitiveness by pioneering new markets taking advantage of government's policy changes and deregulation. In addition, we are laying foundation for market expansion by starting complex skyscraper development projects expecting a long-term synergy effect with other group companies. Currently, three projects are underway in Jamshil Seoul, Busan, and Hanoi Vietnam. The skyscraper business is forecast to grow further with new projects coming in China, the Middle East, and Southeast Asian regions.

New Growth Drivers of the Civil Works Business

Creating new growth engines and social values from overseas civil works

Lotte E&C is delivering our social values to local communities in the overseas market with the expansion of overseas civil works projects. Recently, the importance of the water treatment business is increasing as water shortage and environmental pollution worsen due to population growth. As a result, governments in many Southeast Asian countries set the targets-related to tap water –increasing orders in the form of Official Development Assistance and Public-Private Partnership. Lotte E&C will fulfill our social responsibilities by resolving social problems from water shortage and water pollution as well as create stable profits by actively engaging in overseas water treatment projects based on the competence accumulated from the past civil works experience. Also, we are developing hydro power projects using water, as renewable energy sources are emerging as an important eco-friendly alternative. For the long-term, we plan to expand projects to include Vietnam and Indonesia centered on Pakistan, where we are currently doing business. Through the projects, we will create social values by supplying power for the emerging economies suffering from lack of power and contributing to their development.



Strengthening Technical Competence

R&D Budget
(Ratio of R&D budget to sales, 2012)



Lotte E&C keeps its competitive edge in the global construction market with leading technology for realizing customer values. With the priority on strengthening general technological competence, we are establishing a technological foundation to expand business throughout the soft technology areas with high-additional values from the conventional construction projects, and to provide total construction solutions.

Skyscrapers

Building skyscrapers is a cutting-edge construction division, requiring systematic management of structural engineering, environmental engineering, and other engineering element technologies. Lotte E&C has for years conducted in-depth research on building high-rises over 100 stories. This effort led to the completion of landmark projects such as Lotte World II Jamsil and Busan Lotte Town adopting world-class skyscraper technologies.

Future Infrastructure Technology

Lotte E&C is improving the stability of infrastructure facilities through research for advancing construction technology developing original technology to apply at sites as well as element technologies based on accumulated construction competence. Our constant R&D efforts include the development of Time-dependent Analysis and Electrical Resistivity Survey techniques to provide optimized total solution for design and construction to accommodate the new trends in the industry; convergence and large-scale projects. In addition, we are working to develop core technologies of our own in the next-generation construction areas such as a long-span cable bridges and extended long tunnels. We are leading technological development in the industry to enhance safety and future values with higher investment efficiency. By securing future technologies, we are creating environmental and safety values for stakeholders as well as economic results.

Green Technology

Lotte E&C defined green technology development and future energy as our core research assignment making contribution to renewable energy development and adding environmental values. First, we are making aggressive R&D investment to develop green technology and future energy technology including energy-saving double-vent window system. Also, we applied for a patent for the installment technology of a geothermal exchanger after a successful field test by using diaphragm wall for the first time as a domestic company. Also, we assess carbon emission quantitatively throughout the lifecycle of a construction structure with LOCAS, an assessment system for environmental impact of a building developed by Lotte E&C.

* LOCAS : Carbon Dioxide production from whole life cycle of a structure is measured by quantitative analysis utilized Structure Whole Life's Environmental Load Measurement System (LOCAS*) developed by LOTTE E&C.

Connection between Technology and Business

Lotte E&C is creating social and environmental values as well as economic results by applying technologies developed through the company's R&D efforts.

Technological Product Name	Technological Achievement	Application Areas
Ecoment	Applied to parts of Yongin Shindongbaeg Apartment units and Gimpo Skypark site	Applicable to any areas using ready-mixed concrete
Two-way Void Slabs using panel-type light-weight units	A1 Section of Songdo Internationalization Complex Mall	Technology reducing weight of slab on grade decreasing around 30 percent of GHG emission and applicable to flat slab sites
Basic shearhead reinforcement work using U-shaped plate	KT&G Migeun-dong building	Technology reducing thickness of concrete plate decreasing carbon emission and applicable to mat foundation sites
Research for using natural energy to road structures	Ramp to Jinbu Tunnel Office Test-bed	Technology establishing energy-independent road system and applicable to save energy in building roads including bridge and tunnel

Vision and Mission of Lotte E&C R&D Institute

Lotte E&C R&D Institute pursues core technological competence to achieve the company's vision of becoming "one of Asia's Top 10 construction creators" in 2018 by securing competitiveness differentiated from the rivals in the global market with leading technology realizing customer values.

Directions of Goals

01. Open Innovation R&D

Systematic R&DS management to reflect the values of market as well as customers through an integrated management of technological network in and outside the institute



02. R&BD(Business Development)

Site-centered technological support and profit-oriented technology development applying R&D results to business



03. Expand Value Chain

Securing element technologies for a total solution to expand business areas to include planning and management and maintenance of the building as well as design, engineering, construction



04. Strengthening Global Technological Competence

Defining and educating the process of global leading technologies at major points to accumulate and spread technical knowhow throughout the company strengthening corporate-wide core competence



Construction Technology for the Future

Construction toward a better tomorrow- Lotte E&C helps to build a better future for mankind by developing and adopting new construction technologies.

Lotte E&C is growing as a reliable and trustworthy corporation with the goal of making "a beautiful living space and prosperous life." We are devoted to providing more convenient and pleasant residential spaces and have been consistently expanding business areas in the division of architecture, civil works, plant, and planning & development as well as housing based on solid management. Recently we are raising our status in the global market—including Russia, Libya, Vietnam, and Australia—as a first-class company leading the global information age. To this end, Lotte E&C established the R&D Institute in September 1996 to conduct a wide range of R&D activities in technological research, knowledge management and VE while offering technical support and services at sites to enhance productivity and technological competence of the company.

Main Tasks of the R&D Institute

- Knowledge Management System
- Publication of research paper
- Patent application for new technologies
- Research and development



Media Pole

Well-being Digital life in Space

Lotte E&C Design Institute is realizing a well-being digital life through research on humanity and the environment.

In order to realize a life filled with love, affluence and convenience, a deep understanding and steadfast dedication for creating pleasant residential spaces for society must be regarded as key necessities. Furthermore, the research and development by construction companies must be given top priority. In view of this goal, Lotte E&C has established the Design Institute ahead of its rivals to promptly respond to the various demands of customers as our residential spaces become digital and the quality of living improves. It is also established to perform in-depth researches into the creation of residences fit for society.

Main Tasks

- Plan and design products
- V.E. design (structure/ civil engineering)
- Development of household units
- Interior design
- Media poll
- Landscape and environmental color planning
- Mechanic/ electric design

Corporate Governance

Introduction

Lotte E&C is an unlisted stock company. As of the end of 2012, major shareholders are Hotel Lotte and Lotte Chemical, possessing 35 percent and 32 percent of the total shares respectively. The total number of shares is 34,881,179 and the largest shareholders remain unchanged during the reporting period. The total amount of dividends was KRW 7.5 billion in 2012.

The Board of Directors

The BOD Organization (2013.04)

Title	Name	Position
	Park Chang Kyoo	CEO
Inside Directors	Ha Seok Joo	Head, Housing Division Head, Management Support Team
	Son Eul Shik	Head, Plant Division
	Seok Hee Cheol	Head, Architecture Division
	Shin Kyuk Ho	Chairman-in-chief of Lotte
Non-standing Directors	Shin Young Ja	Chairman of Lotte Welfare Foundation
	Shin Dong Joo	Vice-chairman of Lotte Holdings
Auditor	Kim Chi Hyeon	Lotte Shopping

The BOD Organization and Activities

The Lotte E&C BOD is the top decision-making body. Directors are elected at the general shareholder's meeting and the BOD constitutes 7 directors including inside directors and three non-executive directors. Regular BOD meetings are held quarterly. The quorum for a meeting of the Board should be majority of the Board and decisions will be made by majority rule. In addition to regular meetings, BOD meetings can be held when necessary. All directors are allowed to attend the meeting via any form of communication method 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 acted by a proxy and a director with a conflict of interest in any matter has no right to vote on such matters.

Auditing

Lotte E&C has no separate audit committee but an auditor, Kim Chi Hyeon, is in charge of auditing. The auditor is appointed by vote at the general shareholder's meeting and Kim replaced retiring auditor Park Sang Hoon at the 2012 March 23rd meeting. The auditor has a right to attend the BOD meetings, supervise its 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 has access to management information.

Remuneration for Directors and Auditors

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 resolved as KRW 25 billion at the 2012 general shareholder's meeting and in total, KRW 2.54 billion was paid to the registered directors during the year.

Sustainable Corporate Governance

Lotte E&C established the CSR Secretariat, which operates and oversees sustainability management in an integrated manner under the CEO's supervision. We are also running the CSR committee made up of six sub-committees for each division. As a decision-making body which discusses and decides on issues related to CSR management planning and strategy, the committee is also conducting programs to raise awareness on CSR among internal and external stakeholders. The CSR Secretariat is in charge of establishing mid-and-long term CSR strategies, setting directions and goals for individual division, manage division performance, and respond to outside policies and regulations.



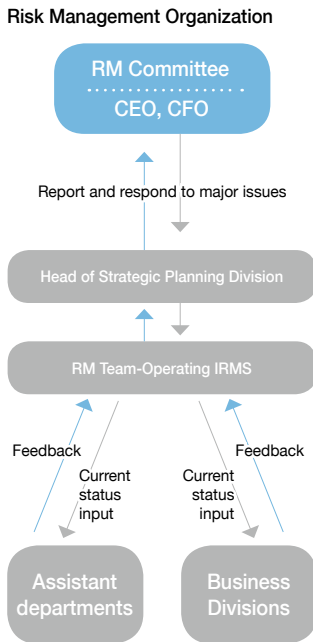
LOTTE E&C

Risk Management

Lotte E&C exerts its efforts to maintain management stability by establishing a decision-making system to timely respond to the rapidly changing construction environment and external crises and promptly resolve risks.

Risk Management System and Performance

Lotte E&C has established a risk management system in order to manage various types of risks more systematically. At the monthly corporate-wide meetings of the risk management committee chaired by the CEO, heads and directors of the divisions are briefed over the current business status and major risk issues. Reported issues are reviewed and suggestions are made to address problems at the working-level meetings during the month. Based on the risk management, we developed a system easy to understand the management status and locate problems for the person(s) in charge and management to suggest solutions. At the same time, we continuously track major management issues, on which we base future prediction for making management decisions. In addition, we support each division and team to set business directions and strategies by presenting objective evaluation standards to complement their subjective criteria.



Risk Management

Lotte E&C is conducting risk management activities throughout the business stages; from the analysis of internal and external business environment to the improvement of business competence and securing financial health during the project.

Management Focus

Secure financial health	Enhance competence	Analyze internal and external environment
<ul style="list-style-type: none"> General management information Cash flow Activating non-current assets Cost reduction 	<ul style="list-style-type: none"> Order performance management Risk management Management of unsold properties Strengthening overseas business competence 	<ul style="list-style-type: none"> Economic and market trends Status of competitors

Risk Management



Management of Financial Risks

Lotte E&C establishes funding plans and manages non-current assets regularly to manage general management risks related to orders booked and sales and improve cash flow. Through these efforts we are enhancing the soundness of financial statements and liquidity. In 2012, we were able to shorten the period for predicting cash flow raising operational efficiency. Also, Lotte E&C continues efforts to cut cost by managing the ratio of cost to budget, amount of cost saved, ratio of cost saved to target saving cost systematically. In 2012, we conducted a range of activities including; assigning and arranging departments to take care of the cost center; clarification of cost management items by sub-categories; and developing and providing software to support calculations of cost saved.

Enhancing Competence

Lotte E&C is managing every potential risk item from the start of a project to finish; conditions of location, outside environment, negotiation and contract, construction, finance, and other risks. In addition, we conduct risk evaluation by prediction (risk evaluation process) to establish, execute, review, and modify safety management plans. In 2012, we have quantified risks and established stable management work process for more efficient risk management. Also, risk management practices centered on housing projects have been spread to other business areas. For effective and practical safety management, we integrated risk evaluation process via the company intranet.

Analysis of Internal and External Environment

As uncertainties in the construction market increase, Lotte E&C collects and analyzes information from in and outside the company including key indicators of the industry such as the number of projects launched, permitted, and orders booked. We computerized major indicators to share information more easily and quickly supporting each department to prepare solutions based on the information.

Giving Back to the Community

Promoting local economy

The architecture division, Lotte E&C's mainstay business, has a great impact on the local economy. First, we contribute to boosting the local economy by engaging local subcontractors and other businesses through purchasing. Not only that, we create new jobs including construction workers to the promotion of the national economy. In 2012, Lotte E&C created 43,498 new jobs domestically. At overseas sites, we make efforts to hire more local talents to promote the economy of the local community.

*Labor inducement coefficient : 12.1/ KRW 100 million (Input-output tables of Korea, The Bank of Korea, 2012)

Generate Economic Activities Indirectly

The construction industry has a far bigger economic impact than other industries. Lotte E&C, as well, is creating great production effects and additional values while doing business. "Production inducement effect" means how much effect increased end-user demand by one unit for a particular product such as buildings and plant, has on productive activities in all industries directly and indirectly. The production inducement coefficient of Lotte E&C was KRW 756.36 billion in 2012. Despite the added value inducement effect slightly declined mainly due to the rise of international raw material costs, Lotte E&C still has a bigger influence than other industries. We helped generate more than KRW 2,692.5 billion in additional values contributing to the national economic growth in 2012.

*Production inducement coefficient : 2.104/ KRW 100 million, Added value inducement coefficient : 0.749/ KRW 100 million (Input-output tables of Korea, The Bank of Korea, 2012)

Participating in the national public works building infrastructure

Lotte E&C is influencing local economies indirectly as well as creating economic values by joining national public works. We have contributed to enhancing convenience of local residents and developing local economies by participating in building social infrastructure such as bridges, expressways, and tunnels including the landmark Gwangan Grand Bridge in Busan. Also, we are helping local residents to improve quality of life by conducting road construction and water treatment projects throughout the world.

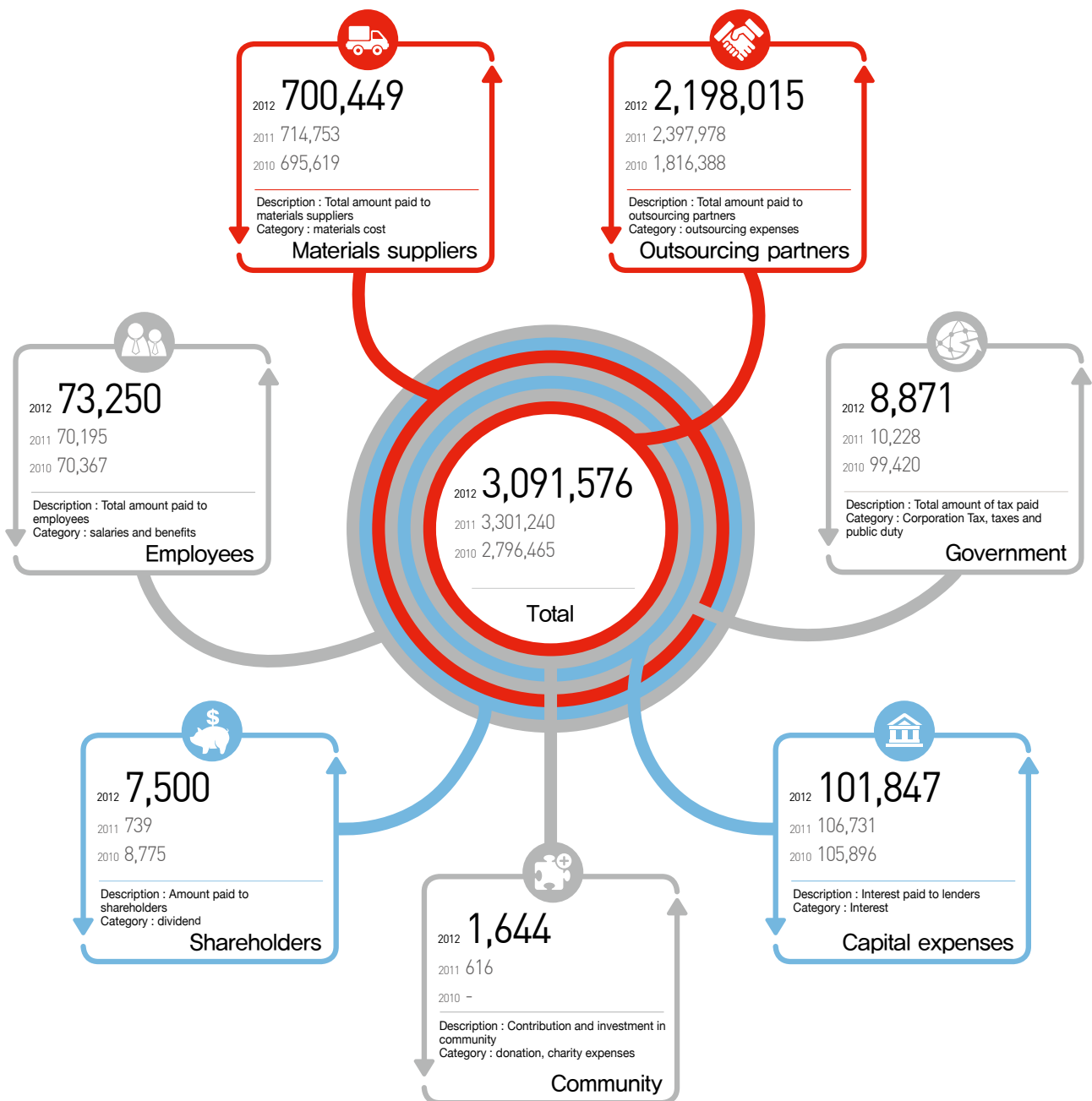


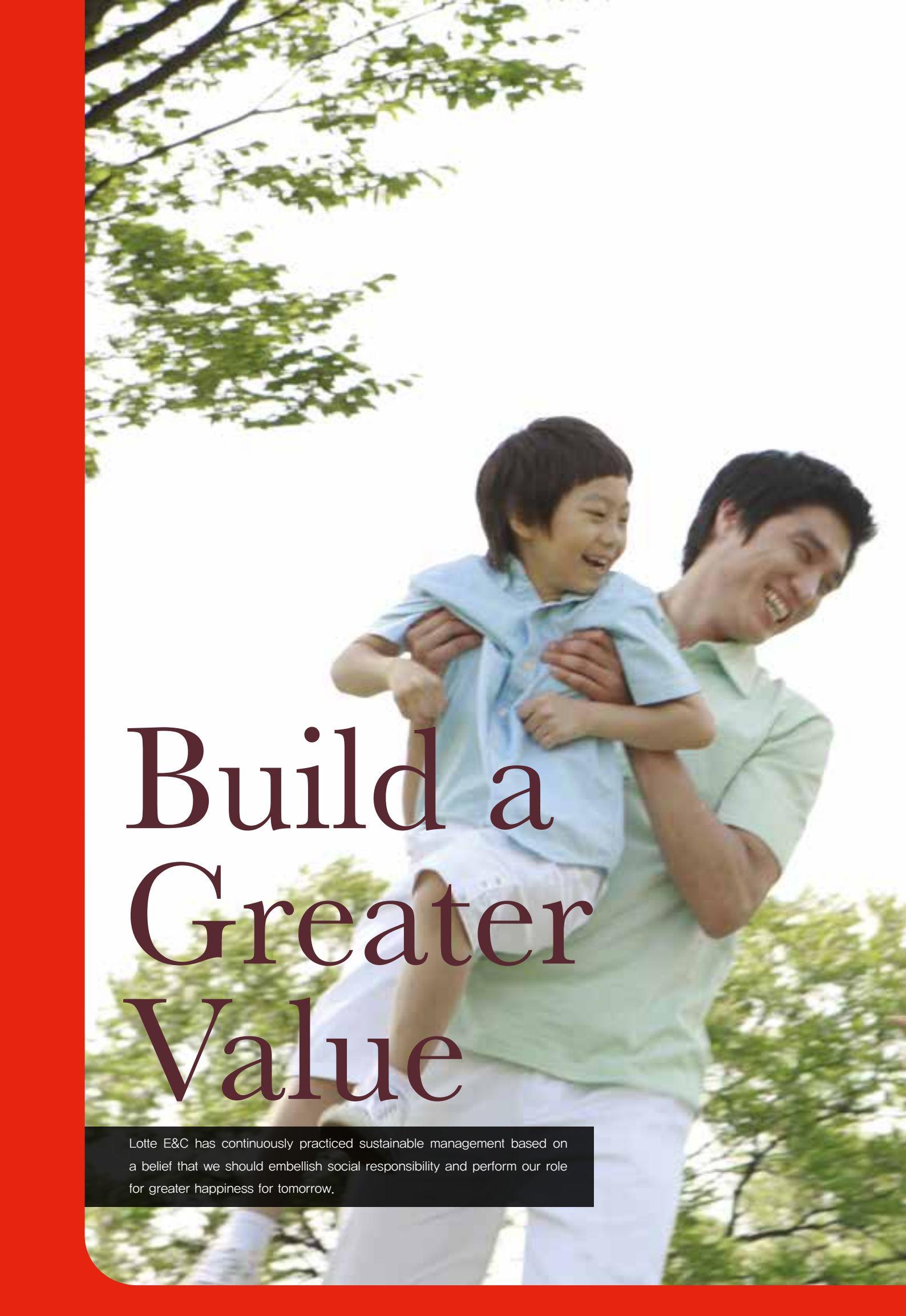
Pangyo Cogeneration Plant Project
Location : Pangyo-dong, Bundang-gu, Gyeonggi-do, Korea
Capacity : GTG-77MW (1 unit), STG-63MW (1 unit), HRSG weight : 1,351ton

Distribution of Economic Results

Lotte E&C is distributing values created from business activities fairly among internal and external stakeholders. In 2012, we returned values worth KRW 3.916 trillion to our shareholders, suppliers, employees, government, and community.

Unit : million KRW





Build a Greater Value

Lotte E&C has continuously practiced sustainable management based on a belief that we should embellish social responsibility and perform our role for greater happiness for tomorrow.



LOTTE CASTLE



Environment and Safety

Disclosure on Management Approach

Lotte E&C has established a vision of "Green Life 2018 in Lotte" and set implementation systems as a part of our commitment to actively respond to environmental issues such as climate change and global warming. We are now creating new values and seizing opportunities of growth through environmental management beyond simple compliance with environmental regulations.

Vision

Green Life 2018 in LOTTE

Strategy & Action Plan

Strategy	Action Plan
	Green Site Management
Establish a foundation for Environmental Management	Develop eco-friendly technology and reorganize long-term plans following corporate strategies for the future
	Environmental management education / joint-inspection with related departments
Eco-friendly business expansion	Build a sustainable design process and prepare assessment indicators
	LID water treatment and development of technology for water reuse
	Continue researching on prevention of desertification using microorganisms that form calcium carbonate
	Manage eco-friendly materials and product development
Building confrontational structure for climate change	Develop greenhouse gas inventory programs
	Execute construction waste reduction activities



Green Management

The will and endeavor in environmental management for global sustainable growth has become crucial, more than ever. Lotte E&C thus has employed environmental management beyond simple compliance with environmental regulations. We have created new values and prepared a base for sustainable growth.

Implementation Directions for Green Management

In order to satisfy the internal and external demand for environmental friendly business and improve long-term corporate value, Lotte E&C has established and practiced 'Green Life 2018 in Lotte', a company-level vision for green management. We have supported society to become green by managing our environmental impact throughout the whole process of business activities, developing and applying various green technologies. Lotte E&C will strive to achieve our vision of green management under the three strategic directions including establishment of the green management scheme, promotion of green businesses, and construction of green base.



Green Management Organization

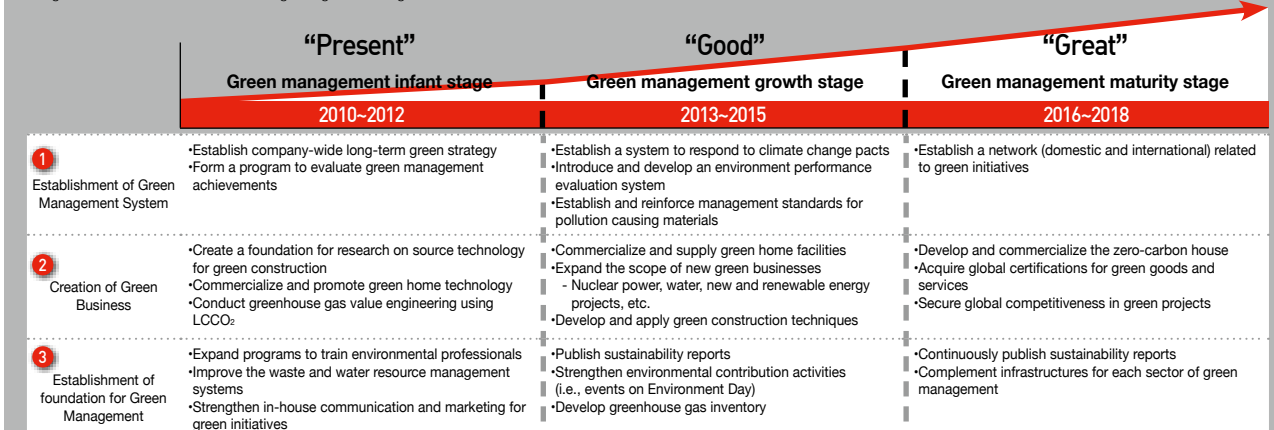
Lotte E&C operates the Environmental Management Subcommittee that executes such activities as establishment of environmental strategy, risk management, information provision, education, and evaluation. The subcommittee, as the center of our environmental management, is run by collaboration with related teams including the HSE Department and R&D Center to secure their expertise.

Green Management System

For sustainable and environmentally sound development, Lotte E&C has acquired ISO 14001 Environmental Management Standard. Building an eco-friendly corporate system and actively responding to international activities, we have been leading environment management in the construction industry. Lotte E&C will strive to respond preemptively to various environmental risks through the Greenhouse Management System (GMS) to collect greenhouse gas emissions data and the Leadership in Energy and Environment Design (LEED) to certify environmental friendly buildings.

Green Management Roadmap

Lotte E&C has settled and expanded green management to company level by establishing a roadmap for green management. The roadmap consists of three strategic directions and detailed assignments and has been used as a sign for green management activities.

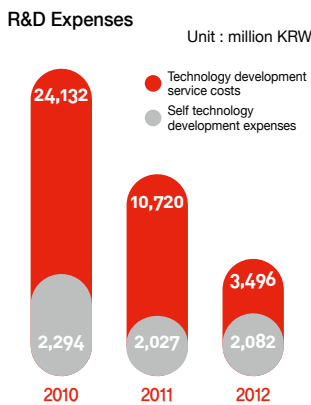


Green Technology

Lotte E&C is to secure a driving force for new growth through the 3-Active strategy to bolster core research capabilities and achieve future visions. The 3-Active strategy includes development of proactive technology (Proactive), development of core technology (Coreactive), and boosting worksite-centered interactions (Inter-active).

Strengthening Infrastructures for Green Technology

To produce green projects, Lotte E&C has performed such activities as reinforcement of infrastructures for green technology development, introduction and commercialization of green technology, and seeking new opportunities for businesses for new growth. We are especially developing eco-friendly goods of which eco-friendly materials, systems, and solutions are applied to maximize energy efficiency.



*Limited to self technology development expenses and technology development service costs out of the total expenses for R&D expenses

Green Technology Development Unit and Budgets

With the research center playing a key role, Lotte E&C has developed eco-friendly technology for low carbon and green growth opening a new horizon of the future construction industry. We have increased investment in research facilities of the center for developing eco-friendly technology and reinforced excellent research personnel. The budget for research and development in 2012 was KRW 5,578 million, which was spent for purchasing experiment apparatus for precedent technology development and reinforcement activities at worksites. We hired one expert in the core technologies related to plant, energy, and environment in 2012 and are planning to recruit over six professionals for conducting new growth projects, innovating costs, and commercializing technologies in 2013.

Green Technology Development Process

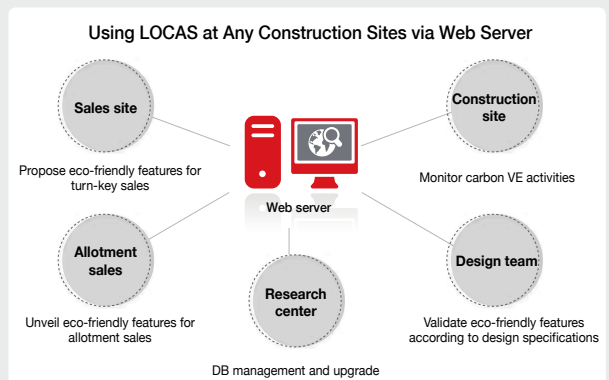
To improve efficiency and maximize effects of technology development, Lotte E&C develops technologies following a process for R&D management based on a procedure that covers from development to applying, registration, and maintenance of patents. In addition, we actively cooperate with headquarters of each operation and the design center by sharing ideas and innovative cases of green goods and green homes to apply them to the phase of development.

National Projects on Green Technology Research

Lotte E&C has secured leadership in green technology by conducting national projects of research on eco-friendly technology with the government. In 2012, we executed national projects with the Ministry of Land, Transport and Maritime Affairs and the Ministry of Knowledge Economy. The national project we performed with the Ministry of Land, Transport and Maritime Affairs was 'A Study on Use of Natural Energy for Road Facilities.' We were able to develop safe, quick, and intellectual highways by applying state-of-the-art civil engineering technology, IT, and automobile technology for the next generation. With the Ministry of Knowledge Economy, we conducted 'A Study on Development of Small-Sized Dispersed Geothermal System.' Through the project, we secured various geothermal sources suited to each construction site and developed eco-friendly and high-efficient geothermal energy system that is capable of supplying group energy. Lotte E&C is planning to secure and improve competitiveness in technology through continuously performing national projects with the government.

Case Study. Lotte E&C Carbon Assessment System

In order to meet the demand of the era for low carbon and green growth, Lotte E&C has developed the Lotte E&C Carbon Assessment System (LOCAS) to promote sustainable development of buildings by pre-assessing energy consumption and CO₂ emissions of the whole process of constructions. The system is subdivided into various assessment methods including simple assessment system, detailed assessment system, and on-site assessment system according to the stage of progress of construction projects; it allows efficient assessment and management of energy consumption and CO₂ emissions from all stages of construction projects. The LOCAS is expected to encourage design of low carbon buildings and low carbon construction activities such as efficient assessment and management of CO₂ emissions, carbon VE, and use of low-carbon materials.





Lotte Castle Kaiser Hwamyong in Busan : Various green home technologies have been applied to Lotte Castle Kaiser in Busan.

Eco-Friendly Construction

Zero Energy Green Home

Lotte E&C has been developing technology for 'green home,' housing for the future. The zero energy green home refers to a house that maintains annual energy consumption at zero through reduction of energy load and efficient use of natural energy. It also provides residents with a pleasant housing environment and minimizes negative impacts on the environment. We are aiming to reduce energy consumption by 100% by 2018 through boosting the development of energy-independent houses.

3-SPEC IN Buildings

The 3-SPEC IN building refers to an eco-friendly building model that enhances energy efficiency (Smart Energy-Spec In), pursues zero defects in room environments (Defect Free-Spec In), and is designed with optimized eco-friendly engineering (Green Economizing-Spec In). Lotte E&C has created economic values through 3-SPEC IN buildings and environmental values by minimizing environmental impact.

Case Study. Eco Technology Applied to Green Home

Lotte E&C constructs 'Green Home,' housing for the future. We have been leading an eco-friendly construction culture through 'eco-technology' of Lotte Castle that is economic and environmental-friendly.

* 'Double Glazed Window' that Saves 30% of Heating Costs

Unlike other window systems, the two panes of glass of this dual open-close window can be opened or closed separately featuring a 200% higher insulation performance than the current legal standard. It can be used for apartments that have an extended balcony and save heating costs by 30% a year.

* 'Standby Power Blocking Switch' lowers electricity bills

The standby power blocking switch blocks standby power of built-in electronics, which are hard to plug off. A switch of the system helps save electric bills of a household by 10 to 15%. In addition, the power saving function of the switch, which blocks power at a pre-set amount of power consumption, also helps reduce power use.

* 'Smart Tree' : An office in the Forest

Smart Tree is a street lamp that lights up using solar energy. With its wireless Internet and power supply device, this rest facility enables people on the street use their cutting-edge electronic equipment outside. Its LED lamp consumes less energy than other lightings and can be recycled when being disposed. It features high energy efficiency and is environmental friendly.



Smart Tree



Sewage Water Reuse Facility in Pohang

LO-MBR (Sewage and Waste Water Treatment Process)

The Lotte Dissolved Ozone Flotation Membrane Bio-Reactor (LO-MBR) is a sewage and waste water treatment process composed of a biological filtration reaction device and a dissolved ozone flotation designed with the purpose to certify and validate new environmental technology.

Expected Effects

- Maintains the lifespan of the separation membrane and reduces chemical and energy consumptions through the membrane fouling reduction technology; reduces operating costs by 10% when applying to sewage advanced treatment facilities
- Enables a biological and physicochemical treatment through the MBR and DOF water treatment process resulting effects of improvement in the quality of water and countermeasures for the reinforced water quality standards
- Establishes a pathway for Lotte E&C to advance into the water industry by applying it to the existing waste water treatment facilities and advanced treatment facilities

Reuse of Sewage

The social and economic demand for the reuse of water has increased as climate change has caused a shortage of water and the demand for water is increasing due to urbanization and an increasing population. Lotte E&C has built core capabilities through Korea's largest project on the reuse of sewage to secure stable construction and operation techniques while responding to the water market that is rapidly growing. The sewage reuse project allows securing high quality water for areas that require an intensified amount of water such as an industrial complex. Compared to other measures to secure water resources such as a dam, it has less environmental impact and helps reduce pollution loads at nearby areas of sewage treatment facilities; it truly is a water resource business that is future oriented and environmental friendly. We will strive to advance the maintenance system at a sewage reuse plant, which requires advanced water treatment technologies, and secure operating economic feasibility to present a successful business model for sewage reuse in the future.

Interview



"I hope green technologies that transform the current industry to knowledge-and technology-intensive industry that is high value added."

As environment related issues have proliferated worldwide, construction companies have developed the green growth industry with such activities as reduction of greenhouse gas emissions and improvement of green technology to increase energy efficiency. As part of the development of eco-friendly housing, Lotte E&C has introduced the zero energy green home applying realistic and practical energy reduction technology unlike other commercialized green technology applied by other construction companies. In order to carry forward sustainable projects, Lotte E&C would need to develop methods and technologies to transfer from labor-intensive construction industry, which is low value added, to knowledge-and technology-intensive industry that is high value added. Because green management, green technology, and green projects will be continually growing, more technologies and methods based on such unique and innovative ideas need to be developed. These activities will allow the company to continue the partner relationship with its clients and work as a key footstep to hold a dominant position in competition against other companies.

Professor Kim Yong-sung, Department of Architecture, Kookmin University





Gimpo Sky Park in which the Distributed Geothermal Energy Use System is applied

New and Renewable Energy

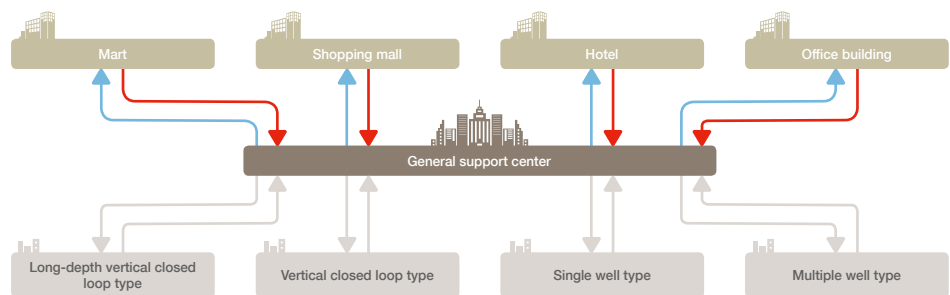
To secure a driving force for new growth and reduce energy consumption, Lotte E&C has actively developed technologies for new and renewable energy such as geothermal heat and solar generation. Solar generation, which transforms geothermal heat and sunlight into battery power by freezing or heating a convecting fluid through a heat exchanger on the ground that is maintained at a certain temperature all year round, can easily be applied to buildings; Lotte E&C will continually make advancements in the related designing and construction technologies.

Geothermal Energy ‘Distributed Geothermal Energy Use System’

The geothermal system is a widely known system of new and renewable energy featuring the highest efficiency existing today.

Lotte E&C has introduced the world a distributed geothermal system that features better performance and efficiency than any other geothermal systems. Improving the existing systems for using new and renewable energy, we have prepared a foundation for applying the system to large-scale construction projects. As the distributed geothermal system is bulkier than the existing geothermal systems, it is capable of supplying air conditioning and heating energy to a large-scale complex. Thus, Lotte E&C has prepared a driving force to make customers’ lives abundant and expand the company by offering the technology that allows the use of eco-friendly energy resources conveniently at a low cost.

Concept map of distributed geothermal system



Case Study. SMART HIGHWAY*

Lotte E&C has studied on measures to apply natural energy (new and renewable energy) to each sector of roads. Especially, we have analyzed economic feasibility of the use of natural energy to road facilities and provided a proposal (manual and standard blueprint) on applying natural energy suited to Smart Highway.

- Snow-melting road using geothermal energy : it is efficient to prevent heavy traffic and sliding accidents when snowing heavily. The technology can be applied to constant freezing areas and entrances of tunnels
- Natural lighting in tunnel : it reduces power use and offers esthetic comfort by applying natural lighting system in tunnels, one of the road structures that require maximum electric power.
- Mini wind power and solar energy generation : This technology generates energy by using road structures or sites, which utilizes unused space around roads and reduces energy use by directly generating power

* SMART HIGHWAY : A study on use of natural natural energy for road structures



Pollution Purification and Environmental Protection Technology



Transforming Waste Resources to Energy

Key Performances in Environmental Friendly Technology

Desertification Prevention Technology Using Microorganisms

Floating dust and sand particles caused by wind erosion severely impact on human health and industrial machinery. As desertification has increased, yellow dust originated from sand particles in Mongolia and Northern China has caused serious issues not only in China but also in Korea and Japan. Lotte E&C has proposed an eco-friendly technology that reduces yellow dust and prevents desertification through the solidifying technology of fine sand grains using microorganisms. Currently, we are developing technologies that efficiently reduce wind erosion by applying microorganisms forming calcium carbonate to dry sand and using the biodegradability fiber. With a local research team in Mongolia, we have been conducting a research using the sand from a desert region in northern Mongolia. For an advanced research project, we are planning to set a testing branch in the desert area so we can directly apply the result to the site and verify efficiency of the technology. Through developing an environmental friendly fusion technology, we will contribute to prevent desertification which has become an issue worldwide.

On-Site Biological Treatment of Polluted Groundwater

Lotte E&C has restored soil and groundwater polluted with chlorine compounds through biological treatment. With the on-site restoration technology, we have secured an underlying technology for groundwater and soil restoration projects and prepared a base for sustainable growth of the company.

Lotte E&C has created a new value from waste resources and has applied it as a source of growth. We have acquired the Green Technology Certificate in the field of waste reuse from the Ministry of Environment for our manufacturing techniques of the Multiple Trommel Screen for sorting wastes. As it simplifies multiple processes for sorting waste, the area required to install sorting facilities can be reduced which will reduce the total construction costs. It has contributed to settle the waste-to-energy business, which is expected to become a driving force for the future. It can be applied to all facilities that transform landfilled waste to resources to reduce greenhouse gas emissions at landfills and construction sites as low carbon green energy that are in-line with the goal of the government of supplying new and renewable energy.

Classification	Name of Technique (or Product)	Green Feasibility of Technique (or Product)	Key Performances in 2012	Key Goals for 2013
All Fields	Eco-ment	• Reduction in CO ₂ emissions	• Registered a patent • Research on improving the quality in progress	
Architecture and Housing	Eco-friendly flooring for parking areas	• Reduction in materials containing Total Volatile Organic Compound (TVOC) and formaldehyde (HCHO)	• Green Technology Certificate in 2011 • Sample construction and construction quality confirmation	• To acquire new technologies
Architecture	Biaxial hollow slab method using a panel type void former unit	• Reduction in CO ₂ emissions	• Acquired new construction technology	• To acquire green technology certificate
	Shear head reinforcement method using heavy plates processed in a shape	• Prevention of underground water leakage and pollution • Prevention of noise and dust generation • Reduction in CO ₂ emissions	• VE activities and low-carbon materials use	• Registered the program on June 17 2011
Architectural Environment	Assessment system for buildings during the entire lifespan	• Encouraged designing of low-carbon buildings • Efficiently managed and assessed CO ₂ • Low-carbon materials use	• Registered the program	
	Grout construction method for vertical closed loop type ground heat exchanger using grout tube sticks	• Energy reduction	• Applied for a patent	• To obtain the patent
Plant	Biological water treatment technology using separation membrane	• Satisfied water quality standard of organic materials	• Acquired a patent	• To apply the new technology
	Green technology for waste transforming to energy	• Reduction in greenhouse gas emissions	• Studied for demonstration facilities	• To acquire green certification
	Sewage advanced treatment technology	• Extension of separation membrane lifespan and reduction in operating costs	• Developed base technology • Installed demonstration facilities	• To acquire a patent • To operate the facilities
	Sewage reuse plant operation	• Energy reduction	• Installed demonstration facilities	• To operate the demonstration facilities • To generate operation DB
Civil Engineering	Use of undercurrent LID linked with underground water level	• Securing water resources • Reuse of underground water	• Built system prototype	• To register software
	Study on use of natural energy for road structures	• Reduction in power generation and electricity	• Tested on actual roads	• To monitor the result of the test
	Desertification prevention technology using microorganisms that form calcium carbonate	• Minimizing yellow dust generation	• Tested with desert sand in Mongolia	• To apply for a patent in the US and Mongolia

Environmental Friendly Construction

To minimize environmental effects at construction sites and cancel out carbon emissions, Lotte E&C pursues environmental friendly construction in all steps including structure design, materials procurement, construction, and operation. We developed various environmental activities to build eco-friendly construction sites improving environment management systems in 2012.

Eco-Friendly Material Procurement and Development

Eco-Friendly Material Procurement

Lotte E&C purchases materials considering their environmental friendly factors in the entire process from design to construction and operation. To fulfill our responsibilities to society beyond simply complying with environmental regulations, we declared a "voluntary pact for industry-wide green purchasing" in 2009 and established a guideline for green purchasing to follow through with the commitment. In 2010, we created an actual green purchasing system for monitoring and strategic expansion of the program. Lotte E&C will set standards for eco-friendly purchasing metrics on all construction materials so that we can precisely measure the results of our commitment in action.

Green Purchasing System

System for Management of Eco-Friendly Materials and Companies

- New partners : when registering as a new partner, register its environmental friendly materials
- Existing partners : adopt the existing database from material information procurement systems of authorities such as the Ministry of Environment

System for Management of Green Purchasing Performance

- Improving work efficiency by computerizing the management of green purchasing performances : automated the performance management by linking companies and items with certification with our code scheme
- Building monitoring system : built a monitoring system for each certification standard, material, and construction site

Green Purchasing

Unit : million KRW

Classification	2010	2011	2012
HB Label	2,653	8,111	3,569
High-efficiency energy equipment	2,008	2,003	5,467
Energy efficiency rating 1 to 2	3,404	11,448	5,790
Eco Label	38,620	4,509	28,243
GR Label	12,589	11,138	4,546
Energy saving	82	978	463

Eco-Friendly Materials Development

Environmental Friendly Eco-Concrete Development

Lotte E&C has developed eco-friendly concrete 'Eco-Concrete' that helps reduce carbon emissions. Instead of cement, which emits lots of carbon, we mix a new compound 'Eco-ment' to make concrete. This does not only improve the strength of concrete but also reduce the use of cement by 20% reducing CO₂ emissions by 8% per 1m³ of ready-mixed concrete. The eco-friendly concrete that was previously developed has not been widely used due to its lower performance compared to general concrete. However, Eco-Concrete features better performances by 10% compared to the concrete made out of 100% of cement, thus can be better used.

* The Eco-ment is made by mixing fine particles disposed from a cement manufacturing process and blast furnace slag, a by-product of iron and steel-making. The Eco-ment can substitute for cement.

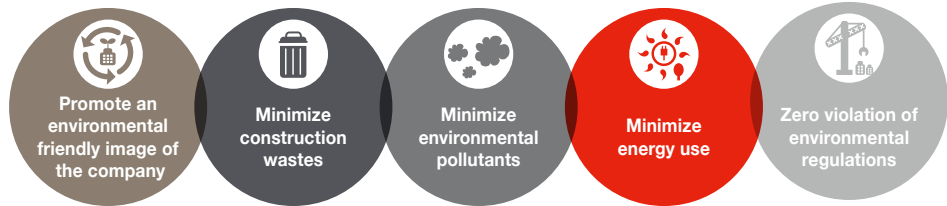
Environmental Friendly Flooring Material for Parking Areas

We have developed environmental friendly flooring material for parking areas that tried to eliminate harmful volatile organic compounds (VOCs). The material contains less Total Volatile Organic Compound (TVOC) (standard/test result : 0.001/below 2.5 mg/m²h) and formaldehyde (standard/test result: 0.004/below 0.12 mg/m²h). We reduced such substances to 1/300 of the standards, and it eased such symptoms of residents and users as breathing difficulties and burning eyes.

Environmental-Friendly Construction

Lotte E&C has set environmental friendly construction goals such as to promote the company's image as an environmental friendly company, minimize construction wastes, environmental pollutants, and energy consumption, and achieve zero violation of environmental regulations. We have strived to minimize any environmental impact that can occur during the construction process.

Environmental Construction Objectives



Environmental Impact Prevention Activities

Environmental Inspection Activities

To minimize environmental pollution in surrounding areas of construction sites, we have created legal guidelines, practical guidelines, and environmental management workbooks and shared them with each crew member on the site to predict pollution sources. In addition, we regularly monitor the operating conditions of the equipment and facilities via the Intranet and conduct voluntary inspections of environmental risks to eradicate environment polluting activities.

Compliance with Environment Related Regulations

Lotte E&C exhaustively complies with environment related regulations. We have especially satisfied the demand of various stakeholders related to environmental regulations to control main pollutants emitted to the air and water. Furthermore, we manage such data for the current states of rented buildings and environmental facilities installed to prevent environmental incidents caused by violation of environmental regulations, through the Lotte E&C Innovative Information System (LENCIS), an in-house information system. Thanks to these endeavors, we have not emitted such pollutants nor violated environmental regulations.

Resource Use Reduction Activities

Construction Materials Management

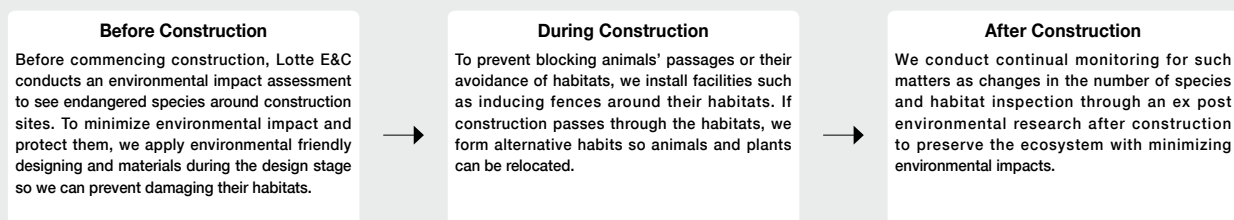
To use construction materials efficiently, Lotte E&C has established and operated recycling guidelines. We encourage construction sites to use recycled aggregates to minimize construction wastes and reduce materials consumption.

Energy Control

We perform energy reduction activities at construction sites of each operation to reduce energy consumption during the construction process while promoting a company-level green campaign to minimize waste in daily life. The amount of energy consumed by Lotte E&C in 2012 was 1,333TJ. We will actualize energy reduction measures through establishing energy consumption reduction goals and setting detailed objectives.

Case Study. Lotte E&C's Biodiversity Protection Activities

Before commencing construction, Lotte E&C conducts an environmental impact assessment to see endangered species around construction sites and considers such factors from the stage of designing. In addition, we apply environmental-friendly designs and materials to protect animals and plants as well as prevent damaging their habitats.



Reuse of Heavy Water

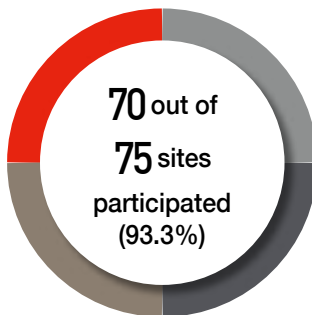
To reduce water use, Lotte E&C establishes reduction goals for each site and promotes various reduction activities. In 2012, Lotte E&C used 1,158,940.897 m³ of water. The water is supplied by water sources near our construction sites and no severe impact on the environment has been found.

Environmental Friendly Activities at Sites

Environmental Purification Activities

Lotte E&C holds an event for Environment Day once a month according to attributes of each construction site to promote environmental consciousness among employees and management personnel. We keep local communities clean through environmental purification activities around each site. To encourage employees to participate in environmental activities, we conduct a voluntary inspection system for environmental risks; we have been able to build a stable and efficient foundation for effective environment management.

Environment Day Events



Atmosphere Management (Management of Scattering Dust)

Over 58% of fine dust in Korea is derived from scattering dust. As the particles of scattering dust generated from construction site will be scattered again, it is crucial to fundamentally reduce the generation of scattering dust. To prevent scattering dust generation, we perform various activities such as washing wheels of transporting vehicles, watering unpaved roads, installing covers for open-storages, operating road cleaning machine and other environmental improvement activities.

Waste Management

Lotte E&C has created Standard Guidelines for Waste Storage and Disposal and applied them to each construction site. Encouraging users to register the amount of waste treated on consignment to the environment management section in the LENCIS, we manage waste emissions and treatment in real-time. By standardizing construction waste storage facilities, we have properly stored and legally treated waste generated from the sites.

Water Quality Management

In order to prevent water pollution due to soil erosion and wastewater discharge, we have installed water pollution prevention facilities such as detritus tanks, silt protectors, and temporary waterways. In order to prevent water pollution due to soil erosion and wastewater discharge, we have installed water pollution prevention facilities such as detritus tanks, silt protectors, temporary waterways. With the sewage treatment technology that maximizes the advantages of the activated biological sludge method, separation membrane technology, and dissolved ozone flotation, we discharge waste water properly minimizing the environmental impact on the water quality of surrounding areas.

Noise and Vibration Management

It is inevitable that noise and vibration occur around construction sites causing legal suits, request for discontinuance of construction, and indemnifications. To minimize civil complaints, we have established management guidelines for noise and vibration, complied with the obligation of installation of soundproof walls to regularly measure and manage noise, and installed soundproof walls and tents for the wheel washing system.



Alternative habitat for Parnassius bremeri (Bremer)



Case Study. Construction of Alternative habitat for Parnassius bremeri (Bremer)

Lotte E&C had recognized that the Sangju-Andong Expressway construction site would pass through the habitat of Parnassius bremeri (Bremer), an endangered species designated by the Ministry of Environment. To prevent damage on endangered species and build environmental friendly expressways, we established countermeasures. First, we formed an alternative habitat to prevent changes in routes of the expressway and protect endangered species; the growing environment was built through restoring and creating of a new habitat. By generating detailed reports on the management of the species in the habitat, changes in the number of the species, and evaluation of the alternative habitat, we have vigorously conducted monitoring and ex-post treatment.

Environmental Friendly Operation

Certifications for Environmental Friendly Buildings

Year	Project Name	Certification	Certified Date
2010	Redevelopment of the Gireum Station area	Preliminary certification for environmental friendly building	07.30
	2nd Apartment Complex in the Jeongwan district	Preliminary certification for environmental friendly building	09.07
	A2 Block in Songdo International Complex	Energy efficiency rating	10.20
	A14 Block in new town of Paju Gyoha	Preliminary certification for environmental friendly building	10.20
2011	RM 12 Block in new town of Chungnam Naepo	Energy efficiency rating	03.15
	M1 Block in Songdo International Complex	Housing capacity rating	11.18
2012	Redevelopment of housing in sector 1 in Cheongscheon in Incheon	Energy efficiency rating	02.15
	28BL Hwaseong Dongtan	Housing capacity rating	06.15
	Oneui in Chuncheon	Housing capacity rating	08.17

Expansion of Environmental Friendly Building Certifications

In order to obtain not only Korean certifications for environmental friendly buildings but also Leadership in Energy & Environmental Design (LEED), an international certification for environmental friendly buildings, we have continually reviewed environmental capacities of our construction projects. We have obtained environmental friendly certifications for three buildings completed in 2012 and will strive to increase the number of buildings certified.

Fostering LEED AP

To foster experts in environmental friendly construction certificates, Lotte E&C supports employees to acquire LEED AP. By fostering and retaining personnel with LEED AP, which are necessary to acquire LEED certification, we have secured architectural technologies that meet the global environmental friendly standards. Including two employees that acquired LEED AP in 2012, and four of our employees hold the certificate.

Operating BEMS

Lotte E&C is currently in the process to introduce Building Energy Management System (BEMS). BEMS is a system that supplies an optimized amount of power through analyzing and managing the current state of energy consumption, that is capable of saving energy by up to 10% a year. We especially apply the geothermal air conditioning and heating system and heat transfer ventilation system to affiliated facilities in a complex. The geothermal air conditioning and heating system uses the underground heat that maintains a constant temperature regardless of season. Through its geothermal pipes buried 150 to 200 meters underground, the system absorbs and emits the heat energy featuring a 40% higher efficiency in air conditioning and heating inside of buildings

Environmental Friendly Demolition

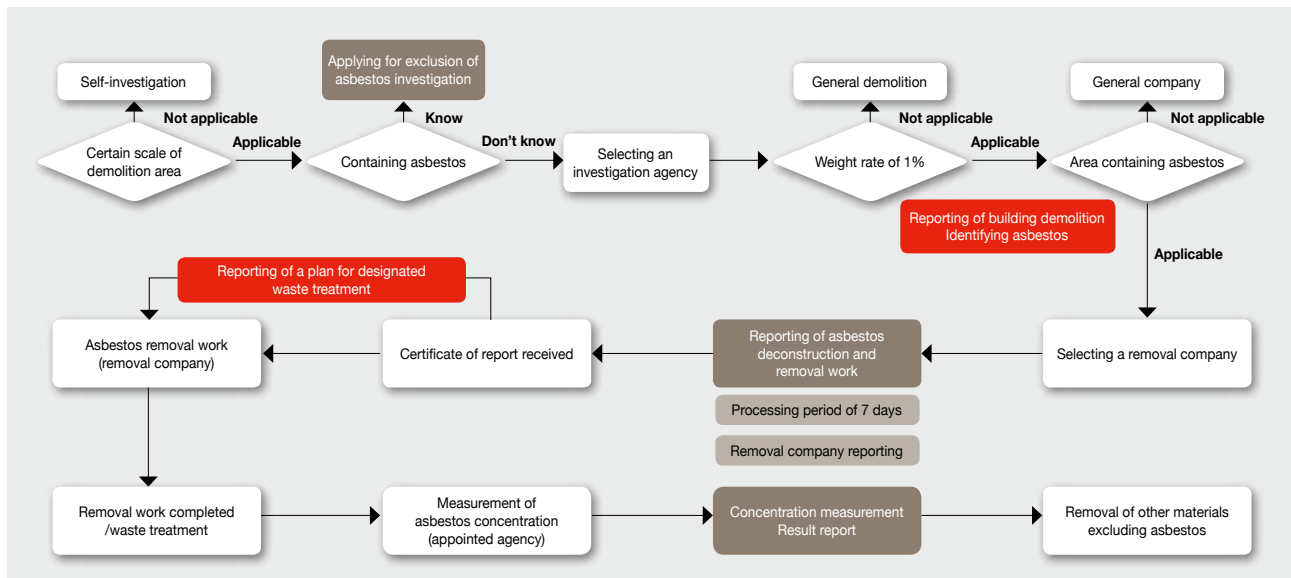
Proper Treatment of Waste

Lotte E&C manages waste treatment performances through an internal information system LENCIS to minimize and reduce waste generation. We created Standard Guidelines for Waste Storage and Disposal as well as standardized construction waste storage facilities to properly store and legally treat waste generated from the site. We are currently working on reduction in waste by recycling and minimizing waste generated from the site and planning to develop a system linked with the Allbaro System to collect data related to waste generation.

Safety Management of Asbestos

Lotte E&C voluntarily signed an agreement with the Ministry of Environment on safety management of asbestos in buildings. We have complied with the operational standards stated in the related regulations to prevent asbestos from scattering during asbestos removal and protect local residents' health. For safety of on-site employees, we made it mandatory to wear a safety hats and uniforms during asbestos treatment.

Asbestos Removal Process



Special Issue.

Lotte E&C's

Green Communication

Lotte E&C has formed a green workplace with employees, even extending eco-friendly guidelines to partner companies. We have implemented continual and systematic education programs on the environment rather than one-time training, sharing the environmental management activities and results through active internal and external communication.



Lotte E&C employees participate in environment purification activities

Green Environmental Education

We increase employees' participation in and understanding of green management by offering them green environmental education programs by position and function. Particularly, in order to reinforce environmental management on site, we provide construction site supervisors and heads of partner companies with customized education programs so that they can put what they learn into practice at the sites. Other educational programs include a course aimed at fostering water recycling experts offered to improve the company's competitiveness in environmental regulations, help acquire basic knowledge on climate change, and establish responding strategies.

Green Environmental Education Conducted in 2012



Energy Reduction Campaign

Lotte E&C has continually conducted and monitored the 'Energy Reduction Campaign', which can be practiced by each employee in their daily lives. We promoted the campaign three times in 2012 and will continue practicing the campaign at the company level.

External Environmental Activities

Lotte E&C has secured leadership in the field of construction environment by actively participating in activities of associations related to the construction environment, such as the Society for Environment Construction and the Construction Association of Korea. In addition, by participating in the Industrial Countermeasure Group for Climate Change and the Expert Panel for Sustainable Management, we have responded to the industrial environment and sustainable management issues of the industry. We also signed a voluntary agreement on green purchasing, held by the Ministry of Environment and organized by the Korea Environmental Industry & Technology Institute in 2012.

Environmental Performance in 2012

Lotte E&C strives to minimize environmental impact at every stage of its operating activities. We have continuously controlled and minimized pollutant emissions, such as greenhouse gas and wastes, recognizing the environmental impact derived from construction projects.

* Scope of data collected : 210 sites in 2010, 221 sites in 2011, 235 sites in 2012

INPUT



Environmental Friendly Materials Purchasing and Development

- Environmental friendly materials purchasing
- Environmental friendly materials development



Environmental Friendly Construction

- Environmental impact prevention activities
- Resource use reduction activities
- Environmental friendly activities on construction sites

R&D Expenses

2012

5,578 million KRW

Resource Consumption

Ready-mix concrete

2,011,156 m³

Aggregate

171,735 m³

Cement

118,275 ton

Asphalt Concrete

268,509 ton

Sand

152,164 m³

Plaster boards

844,092 sheets

Rebar

220,978 ton

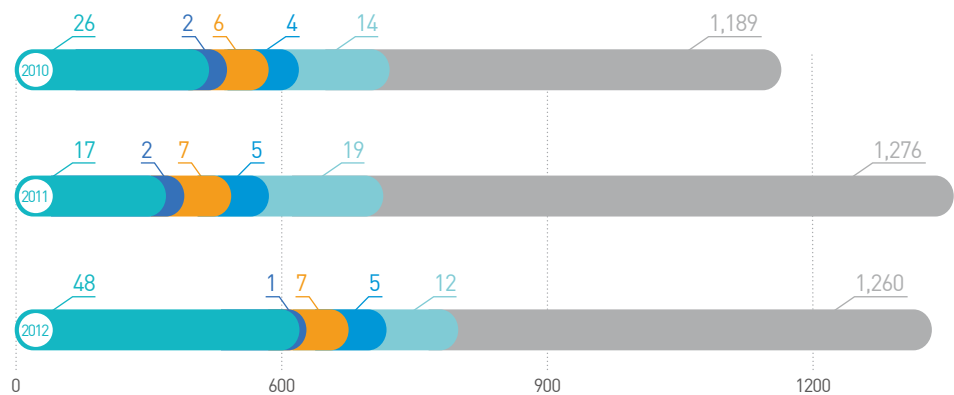
Recycled aggregate

7,052 m³

Building Energy Use

● City gas (LNG) ● LPG ● Gasoline ● Diesel ● Kerosene ● Electricity

Unit : TJ



Water Use

Water and sewage

2012



1,011,815 ton

Underground water

2012



147,125 ton



Environmental Friendly Operation

- Expanding certification of Environmental friendly buildings
- Securing experts in environmental friendly business
- Operating building energy management system



Environmental Friendly Demolition

- Proper treatment of waste
- Safe treatment of asbestos

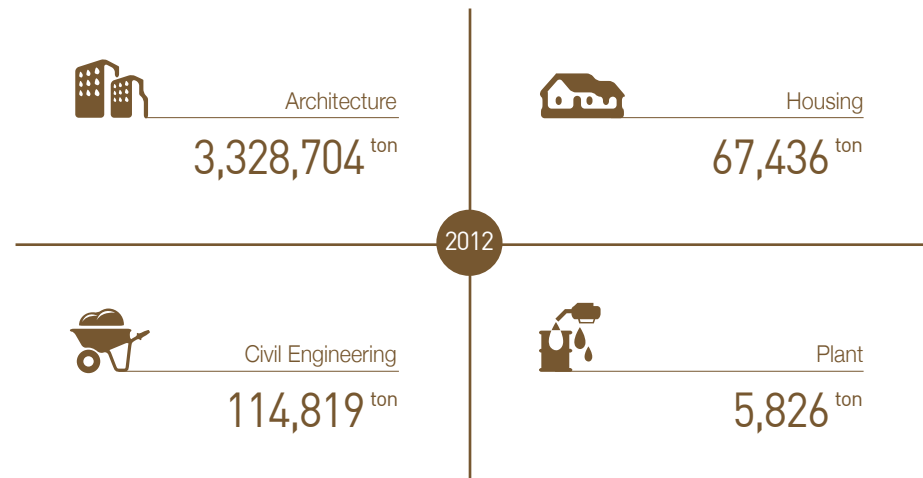
OUTPUT

Waste Generation



Waste concrete	3,388 ton	Waste wood	4,768 ton
Waste asphalt concrete	37,003 ton	Waste synthetic resins	6,417 ton
Waste construction stone	7,444 ton	Waste roof tile	372 ton
Construction sludge	389 ton	Mixed construction wastes	69,682 ton

Wastes by Operation

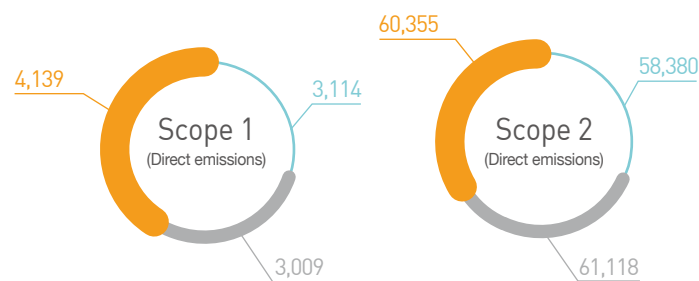


Greenhouse Gas Emissions



● 2010 ● 2011 ● 2012

Unit : tCO₂-e



Total	2010	2011	2012
	61,495	64,128	64,494

Safety and Health Management

Putting safety as its top priority, Lotte E&C rigorously executes safety management. We have satisfied the request of employees and stakeholders at every worksite, forming a safe work environment based on a humanistic culture.

Safety and Health Management Principle

Lotte E&C has set and complied with a policy on safety and health management in order to establish a culture of safety and health, upholding its status as a global construction company that contributes to the society and provides healthier lives.

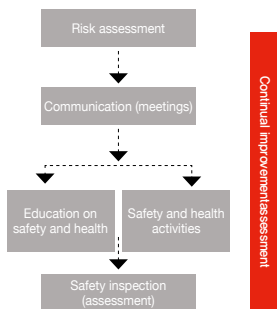
Safety and Health Management Principle

<p>01.</p> <p>Employees and partner companies work together to reduce the rate of safety accidents to zero.</p>	<p>02.</p> <p>We build a global safety and health management system through continual operation and development of KOSHA/OHSAS 18001.</p>	<p>03.</p> <p>We vigorously company with safety related regulations and rules, accept managerial reviews and opinions of stakeholders to apply them to our business goals.</p>	<p>04.</p> <p>We pursue organized activities such as execution, review, and corrective measures by establishing a plan on safety management through strict risk assessments with prior prediction.</p>	<p>05.</p> <p>We form a pleasant work environment with interest and consideration for each other, settle a safety and health culture, and create absolute values for sustainable management.</p>
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Vision for Safety Management

Lotte E&C has rigorously carried out safety management activities with a vision to be the '1ST Safety Value Creator.' To be ranked top in the industry for disaster prevention rate, we engage in various safety management activities and promote a positive corporate image by being No.1 in the industry for safety awareness. We are maximizing our stakeholders' satisfaction through conducting the Penalty Zero Program and creating a driving force for the future.

Risk Assessment Process



Building Safety and Health Management System

Recognizing safety as an important part of our corporate management, we have systemically managed safety from a managerial standpoint. All employees and workers of Lotte E&C have participated in safety management based on risk management, while the company has exclusively implemented a differentiated Safety and Health Management system, to protect our employees and realize zero-incidents at worksites. As a result of the continuous endeavor in improving the level of safety and health at company level, we acquired Safety and Health Management Certificates, KOSHA18001 in 2002 and OHSAS18001 in 2003.

Operating a Risk Assessment System

Lotte E&C builds and operates an efficient and stable safety management structure combining our intra IT network with a risk assessment process has enabled us to beforehand, asses risks beforehand, and prepare preventive measures predetermine risks, as well as build and operate an efficient and stable safety management structure.

Case study. Reinforced execution of measures on eradication of severe accidents in 2012

1. Compliance to Installation of Five Key Safety Facilities

In order to prevent facility accidents, Lotte E&C rechecks the measures on management of safety facilities and encourage worksites to comply with proper installation meadures of the five compulsory safety facilities, which have been pointed out as key factors for many accidents.

<p>01 Installation of safety hook devices on steel frames, beams, and girders</p>	<p>04 installation of scaffolding passage</p>
<p>02 Installation of covers on floor openings</p>	<p>05 Coupling of excavator couplers</p>
<p>03 Endorsernent of working in pairs to prevent overturning of ladders</p>	



Safety Incident Prevention Activities

Headquarters

Strengthening Safety Inspection at Construction Sites

Lotte E&C conducts safety inspection to prevent disasters by amending inappropriate situations and responding quickly to them. We reinforced safety inspection activities at construction sites in 2012. When operation methods or safety facilities are found to be faulty or substandard, or unable to be fixed immediately following inspection, we cease the process in question after being approved by HSE heads. We also reinforced disciplinary actions taken for construction sites with poor safety inspection results. A first warning is issued to a construction site that is found to be violating terms such as installation of necessary safety facilities. Another inspection is conducted at the site within a week. If the inspection results are still substandard, a second warning is issued and the site is reported to headquarter meeting. The result of the headquarters' safety inspection is posted on an intra-bulletin board every month to arouse employees' attention.

Safety Inspections Conducted

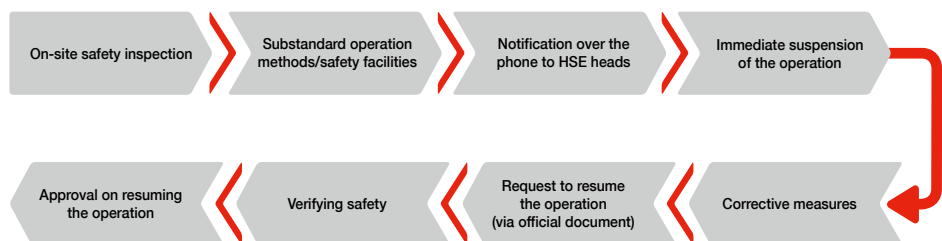
2012



342 times

*Including regular, irregular, hazardous risk prevention planning and inspection

On-Site Safety Inspection Process



2. 'Three Strikes and Out System'

Lotte E&C runs 'Three Strikes and Out System' for those who violate the seven compulsory safety rules.



Communication Expansion

Along with monthly meetings on safety environment and working-level meetings held by the CEO to discuss current issues on the safety environment, we conduct a local council of safety managers to mutually exchange information among the managers to improve their technical skills. Working-level staff from the HSE sector and all other operations participate in monthly working-level meetings on safety environment to share their safety measures for the upcoming month and plans for the future, as well as safety inspection results, and discuss solutions for construction sites in which warnings have been issued.

Education on Safety

Lotte E&C raises safety consciousness of employees through organized and continuous education on safety. We offer education programs on safety by position and function while providing programs such as customized education programs for practical business skills and trainings for construction equipment inspection know-how, have conducted by equipment experts. In 2012, we offered a total of eight safety education courses and 1,366 employees successfully have completed the courses.

Site

Conducting 'Special Meetings on Safety Measures'

To reduce the rate of worksite accidents to zero, we host 'Special Meetings on Safety Measures', held by on-site engineers. Key agendas of the meetings include drawing overall risk factors at sites, reconfirming measures for risk factor management, and establishing special safety management measures for each site to prevent disasters. The results of the meetings and other disaster precedents are shared by all sites during utilized in special safety education programs for employees.

Safety Inspection Day

We carry out Safety Inspection Day to raise safety awareness among employees. The Safety Inspection Day is 4th of every month and holds various events to declare emergency management regime and aim for zero incidents and zero disasters. Notable figures, including directors of headquarters and executives visit sites to encourage employees and promote safety.

Fire Accident Prevention Activities

Lotte E&C has reinforced inspections on fire extinguishers to prevent fire and fire related accidents at construction sites. With such prevention education and trainings, we are improving on-site response capabilities of employees.

- Management of flammables treatment and reinforcement of firefighting facilities inspection

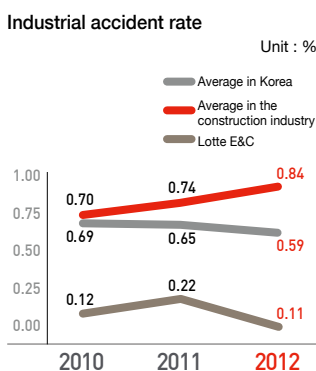
Lotte E&C installs firefighting facilities such as diffusion fire extinguishers, emergency exit signs and earth leakage circuit breakers at sites, and conduct on-site inspection of firefighting facilities. We have also reinforced the inspection of firefighting facilities and guidelines on flammables treatment' particularly by such as assigning fire inspectors when treating flammables and ban ming simultaneous operation of painting and welding. Through the pre-report system for flammables treatment, we manage risks of fire accidents, and we also designate fire inspectors, safety managers and fire management supervisors to run the system smoothly.

- Securing on-site responding capabilities of employees through preventive education and training on fire accidents

Lotte E&C has secured the ability to respond to emergency situations through running daily and regular education, programs in conjunction with the district five departments, and training for emergency situations. The general education program includes monthly safety education courses and fire prevention education programs for all employees. Newly hired employees or those who work with flammables are frequently provided with fire prevention disciplines.

Accident Management

Lotte E&C supervises the current level of safety accidents through conducting on-site safety accident prevention activities. In 2012, the industrial accident rate of Lotte E&C was 0.11%, and we will strive to minimize the occurrence of such accidents by holding safety education programs and activities continuously.



*Source of data for the average rates in Korea and the industry : the Ministry of Employment and Labor, Industrial Incidents in 2012

*The accident rate of Lotte E&C was converted (= [converted no. of victims/no. of permanent employees] x 100)

Special Issue.

Lotte E&C's **Safety Reinforcement Activities** at Sites Overseas

For safety management at the Hanoi Center site, expected to become a landmark in Vietnam, we have provided the site with HSE manuals, regulations, and educational materials for worksites overseas identifying key issues and requests at the site.

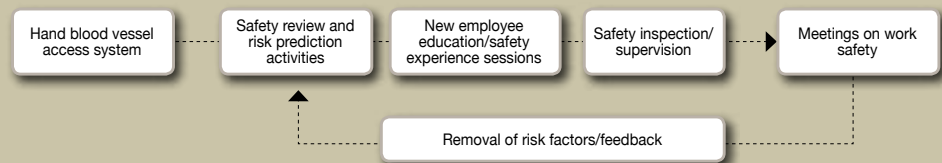


Fire simulation training

Excellence of the Hanoi Center in Vietnam

1. Operating a hand blood vessel identification security system to fundamentally control the access of non-authorized personnel
2. Establishing education infrastructures such as state-of-the-art facilities for safety education and a simulation room for construction safety, a first-kind in Vietnam
3. Initiating emotional safety campaigns through expanding rest and medical facilities upholding Vietnamese culture and customs
4. Holding regular/frequent education sessions on safety to improve employees' professionalism and safety consciousness
5. Establishing a system for managing the history of equipments and conducting regular safety inspections of the equipment, due to deterioration of equipment and infrastructures

Safety Management Procedure



Safety Exchange Activities

As part of the safety exchange project, Lotte E&C offers on-site visits to introduce advanced safety management methods (installation of safety facilities) of the Hanoi Center site. Through the program, employees of the Korea Occupational Safety and Health Agency (KOSHA) have visited the site. With the head of the Safety and Health Training Center in Vietnam, they have recognized the excellence of the site in terms of rest areas, medical facilities, and safety simulation rooms in which Vietnamese culture and customs are reflected.

Supporting Overseas Sites with Educational Materials and Accident Cases by Country

For safety management at overseas sites, Lotte E&C provides case study materials on disasters by country and other educational materials to overseas worksites.

Content of the Educational Materials for Overseas Sites

Classification		Key Content
Accident Cases		<ul style="list-style-type: none"> • 30 out of the most recent accidents • Language : English, Vietnamese, Russian, Arabic
Audio and Visual Educational Materials	China	<ul style="list-style-type: none"> • Regulations on industrial safety and health in China • Source : Ministry of Housing and Urban-Rural Development of the People's Republic of China
	Middle East	<ul style="list-style-type: none"> • Occupational safety regulations and standard labor manuals of ILO • Source : Occupational Safety and Health Administration (OSHA)



[Audio-visual educational materials for the Middle East-Arabic]

Customer

Disclosure on Management Approach

Lotte Engineering & Construction (Lotte E&C) has put forth consistent effort to improve customer satisfaction, quality management, and customer relationship management. We will do our best to enhance our reliability to the customer by actively communicating with them.

Vision

Improvement in customer satisfaction through field and customer management prior to project completion

Strategy & Action Plan

Strategy	Action Plan
Improve the quality of construction through pre-management	Improve the quality of construction through reinforcement of B/S inspection in a field before the completion of the project
Build a protection system for customer information	Establish a process for import and export of customer information and develop a stability index for customer information protection
Strengthen customer relationship management	Reinforce channels for customer contact satisfaction management and communication
	Expand the improvement of services for customer participation and reflect NEEDS' housing culture



Customer Satisfaction Management

Lotte E&C reflects customers' opinions on management activities. We also perform various activities, from quality management to customer satisfaction management, to maximize customer satisfaction.

Customer Satisfaction Management System

CS Management System

The C/S department in Lotte E&C consists of two parts, including a Before Service(B/S) and an After Service(A/S) & customer center, to support the effective management of customer satisfaction services. The B/S performs quality management (planning/inspection/improvement), quality education and policy improvement, quality management system (ISO 9001) certification management, and defect and improvement cases. The A/S & customer center improves customer satisfaction through tasks such as after-sale services, customer center (website/happy call service) management, etc.

Capacity Enhancement through CS Education

Lotte E&C has conducted a service mindset training to improve customer treatment abilities and customer satisfaction through the re-establishment of the customer service mindset. In 2012, we held service trainings twice in both metropolitan and regional areas, which 172 employees of the C/S department attended. Furthermore, we have implemented courses on customer treatment and quality in regards to customers' changing tendencies for not only our employees, but also for suppliers, to help them develop a better understanding of customers. Critically, we held quality training courses for suppliers, aimed at maintenance and management suppliers, in 2012.

Quality Management

Lotte E&C has conducted courses on basic service mindset and cases of main defects, to prevent customer complaints in advance and maximize customer satisfaction through quality management activities.

Quality Management System

Lotte E&C has implemented a quality management system to establish a unified defect management system. Through this system, we are performing follow-up management in a strategic manner. Particularly, results of statistics and analysis on after-sale services are used as feedback to improve customer satisfaction.

Integrated Risk Management System

Lotte E&C has built and managed an integrated risk management system to take immediate actions on risks, such as fire, flood, and facility defects, and offer continuous follow-up services for customers. Based on the established system, we are able to perform a real-time check through the internet, e-mail, short message service (SMS), and voice service provider. It is also feasible to integrate dispersed facilities for management. As diverse sensors send simultaneous notifications on detected disaster status to managers and directors, immediate actions can be taken for relevant situations. We will continue our efforts to manage and prevent disasters and conduct constant service activities.

Interview



"Lotte E&C's service cares about customers' opinions"

As a resident of Lotte Castle in Hwamyong, I appreciate the services of Lotte E&C and their active communication with customers.. As if they communicated with residents one-by-one, customers' opinions are reflected extensively in a convenient interior, intelligent system; in a large community facility (the Castlian Center);, and in a 'book café' in which people can enjoy reading books with a cup of tea. Kaiser Recreation with Residents, an event held in the Castlian Center, was an especially well-prepared event which deeply understood residents' perspectives. I was impressed by many events, including a swimming competition, golf tournament, and concert, which used the center's facilities effectively. It was also nice to have an opportunity to communicate and become familiar with other residents I had no chance to talk to, even though we knew about each other. I think Lotte Castle Kaiser in Hwamyong is more like a "home" than a "house." If a house implies a view of construction, home refers to a place for families' and neighbors' lives. I hope Lotte E&C will continue its efforts to pay attention to customers' opinions and provide services which satisfy both rational and emotional needs.

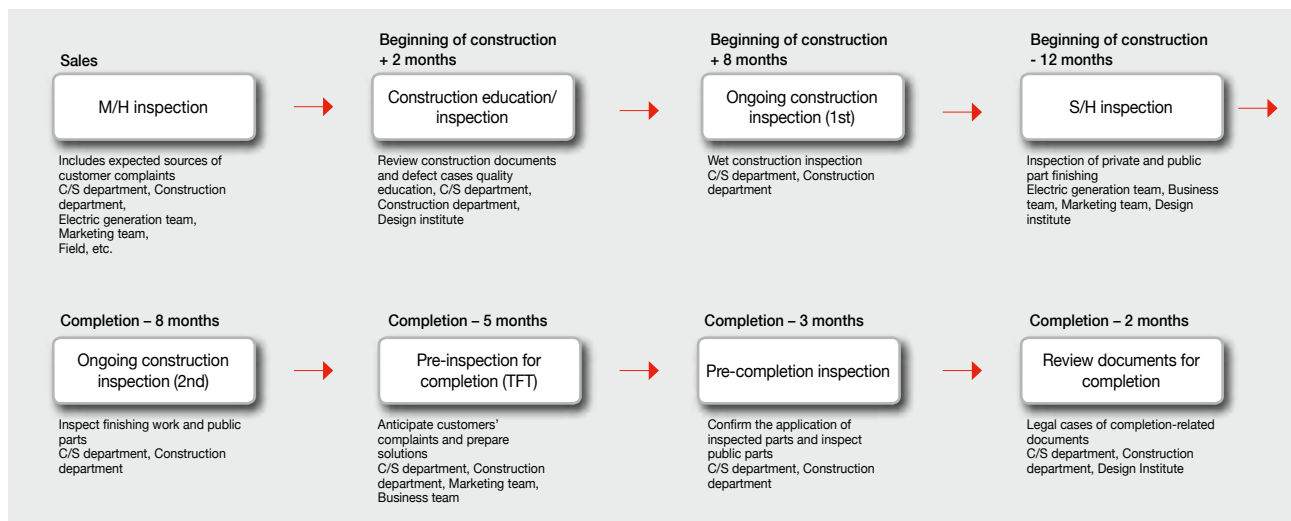
Eunju Kim, a resident at Lotte Castle



Quality Inspection Activities

Lotte E&C is improving customer satisfaction and its global image by preventing customer complaints in advance through quality enhancement. We first inspect a model house in the customer's point of view, detect areas of possible defects, and then propose solutions accordingly. We also examine design and construction problems through a defect case study aimed at construction employees, as well as sample house inspections. Our headquarters conducts a confirmation inspection 4-5 months before the completion of construction to ensure that it is completed smoothly. We discuss solutions to parts which would give rise to customer complaints 90 days before construction by completion it with the final version of the model house.

Quality Inspection Process



Quality Education (Quality Innovation Academy)

Lotte E&C has conducted training courses on concrete construction and quality, which has the most expensive defect treatment, to help guide employees to minimize defects and promote quality enhancement. Most importantly, we aim to achieve internal stability through professional education such as an intensive training courses on main construction management, case trainings on field achievement/failure, trainings on job classification, etc. Moreover, we are maximizing customer satisfaction by conducting basic service education to effectively perform a case training on main defects and customer satisfaction services.

Customer Satisfaction Activity

Lotte E&C supports customers' more convenient residence life through thorough pre-inspection and constant, swift follow-up management. We are also maximizing customer satisfaction by managing an organized system which comprehends the trends of the housing culture.

Lotte E&C's Continuous Customer Satisfaction Service Before and After Move-in

Lotte E&C achieves customer satisfaction by providing continuous and practical services for their lives before and after move-in. We also perform a cleaning service for kitchens and bathrooms, and landscape management, depending on the period of the move-in.

Before and Beginning of the Move-in

| Resident Satisfaction Survey on Pre-Inspection |

Lotte E&C holds a pre-inspection event for residents 30 days before their move-in to improve resident satisfaction. We also conduct a satisfaction survey on events, house finishing, complex/outside landscape, the degree of employees' kindness, suggestions, and complaints; this survey is aimed at residents that our employees meet during the pre-inspection for residents. We are using the results of this survey for further improvement.

| Visiting Service |

Lotte E&C runs a visiting team, composed of two Seoul teams, three Deagu teams, and three Busan teams, to take swift action on issues that arise in the beginning of the move-in. The visiting team prevents the increase of customer complaints due to the delay of defect treatment, as we give priority to long-term untreated defects, serious defects, and unknown defects for treatment.

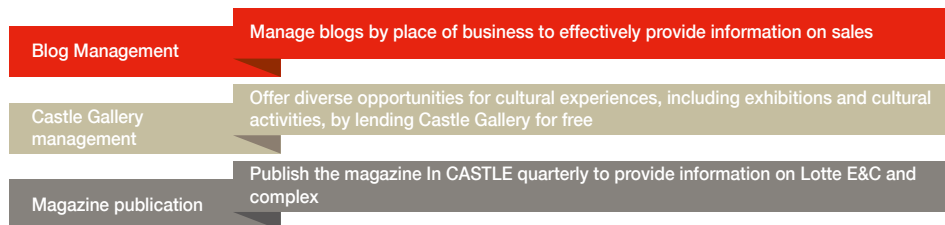
Mobile Customer Satisfaction System

Lotte E&C has established a mobile customer satisfaction system in which results of after-sale services can be input using a smartphone instantly, to increase the reliability of data and maximize customer satisfaction. The mobile customer satisfaction system provides information on the list of requests for after-sale services by field, an inquiry of field after-sale services, etc. It also offers varied services, including an inquiry into personal background, pictures taken after the completion of after-sale services, and an option to attach signatures of workers and customers.

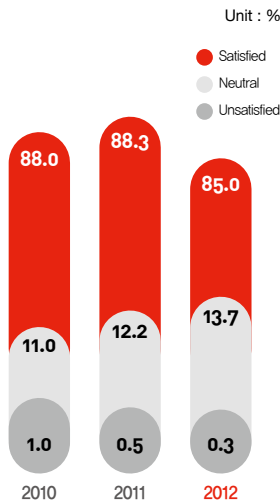
Enhancement of Communication Channels

Lotte E&C is increasing online and mobile services to improve customer access. We are also enhancing event participation and communication channels to establish an environment in which more customers enjoy our services and benefits. In particular, we are planning to build a 'mobile website' to provide information on a variety of information on Lotte Castle for the increasing number of smartphone users. We are also improving website access for physically challenged citizens who are isolated from information.

Lotte E&C's Communication Channels



Level of Satisfaction on Happy Call



Happy Call Service

Lotte E&C conducts a survey on satisfaction of after-sale services, complaints, etc. through a happy call service, and uses it as feedback for customer satisfaction. The scope of the happy call service includes not only the after-sale services satisfaction survey, but also customer satisfaction-related counseling on leasing, bill-collecting, defects, etc. Contents of the happy call service are added to the database to prevent repeat inconveniences. We have operated the happy call service for every request on after-sale services to improve customer satisfaction since 2012.

Protection of Customer Information

Lotte E&C has made a great effort to prevent the leakage of customer information through selective access authorization, encryption management on the database of customer information, etc. to protect customers' important personal information. We have established security policies and maintained management supervision through the personal information protection committee, which maintains a business perspective. The committee has been responsible for exhaustive management of customer information since 2010. We are also enhancing security consciousness through a regular training on information protection aimed at employees and suppliers. No violations of the protection of customer information occurred in 2012.

After the Move-in

| The first-year defect inspection |

Lotte E&C provides a visiting service in which a professional manager visits residents for defect inspection and receive a request before the end of the first year to minimize the number of complaints and defects. Importantly, we are performing an active visiting service in a new way in which a move-in manager receives requests the one-to-one visiting service instead of the conventional way in which a whole list of requests are collected through resident representative meetings and the control office. Customer complaints are also minimized through fast defect treatment. We look forward to reducing costs by 20% and improvement of our brand image regarding the decrease in the number of defects.



| Support for various cultural activities |

Lotte E&C provides various cultural activities to improve resident satisfaction. We are not only running a Castle café and gallery, but we're also offering diverse community facilities, such as a golf course, gym, and reading room, for residents' convenience.

Suppliers

Disclosure on Management Approach

Lotte E&C aims to be come the best company for mutual growth in 2015. To achieve this, we are sharing the importance of mutual growth with employees and creating a Win-Win culture with suppliers.

Vision

To be a leading company for mutual growth based on fair trade and mutual exchange

Strategy & Action Plan

Strategy	Action Plan
Establish a fair trade system	Closely follow four guidelines for fair trade
	Improve payment methods and dates
Strengthen a support system for suppliers	Reinforce financial support for suppliers
	Reinforce technical development support for suppliers
	Reinforce education support for suppliers
Spread mutual growth culture	Promote a national and international network system

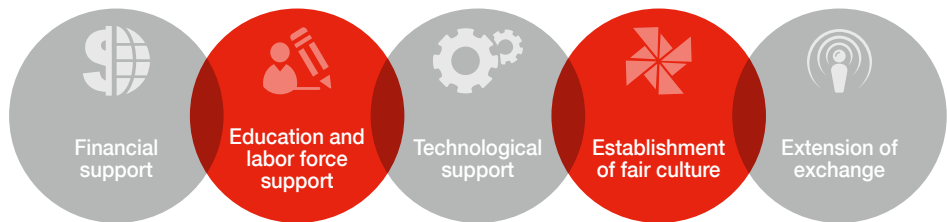


Promotion of Mutual Growth

Lotte E&C is managing specific projects and promotion policies on mutual growth by section to promote growth and manage achievements in association with the Lotte Group. We will increase various practical supports to enhance suppliers' capacity in the future.

Five Main Projects for Mutual Growth

Lotte E&C is performing mutual growth activities based on five main projects : financial support, education for labor force, technological competence, extension of exchange, and fair culture.

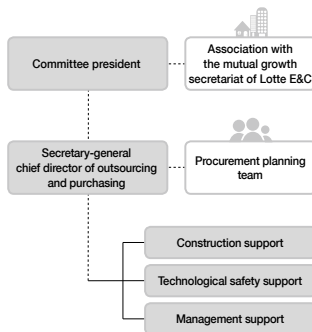


Partnership with Suppliers

Management Organization

Lotte E&C maintains a procurement planning team in the head office of outsourcing and purchasing as a professional department responsible for mutual growth. We also look into quarterly achievements of mutual growth and report them to the CEO in order to build a support system for suppliers through the mutual growth promotion secretariat, established and managed by both Lotte Group and its subsidiaries. In addition, we also run an inquiry committee annually in order to achieve effective performance of supplier management tasks, including selection and support of excellent suppliers, decisions and measures on financially weak companies, etc. The inquiry committee informs the CEO about main information on suppliers such as the cancellation of registration of unqualified companies, supplier evaluation, and promotion of excellent suppliers after discussing and coming to decisions about them.

Organization of Mutual Growth



Fair Selection of Suppliers

Lotte E&C have implemented and complied with the guidelines for selection and management of suppliers to build reliability from the selection stage of suppliers. Suppliers selected through the fair process should sign the agreement of ethical management compliance via electronic signature.

Promotion and Management of Suppliers

Lotte E&C prepares support policies for suppliers in order to complete construction successfully. We are continuously discovering new and outstanding suppliers, enabling us to react to an increase in the number of construction orders, inter-company cartels, changes in financially weak companies, etc. We are also setting a rational selection standard for supplier registration and selecting suppliers through market research, recommendations, visits, etc. Particularly, we provide excellent suppliers with rewards and support, including an increase in contract opportunities, exemption and reduction of contract bonds, financial support, etc. to maintain a partnership based on reliability.

Roadmap for Mutual Growth Promotion

Lotte E&C sets medium-and long-term visions and goals and performs main projects in stages to carry out constant mutual growth. We also seek a direction for development through a regular meeting of the mutual growth promotion secretariat every month.

	Stage 1 (2010-2011)	Stage 2 (2012-2013)	Stage 3 (2014-2015)
Goal	Establish a mutual growth organization and comply with five main projects	Establish a mutual growth system and promote investment	Establish a reputation as the best company for mutual growth
Main Project	Form a master plan which launches five main projects	Establish corporate culture for mutual growth Establish the infrastructure for the management system Enhance national and international partnerships	Achieve 'excellent' grade for the mutual growth index Establish an pro-social corporate image



Climbing Contest for Mutual Growth

Evaluation and Monitoring of Suppliers

Lotte E&C supports suppliers to help them maintain excellent quality and improve competitiveness through regular evaluation and monitoring. Supplier evaluation is composed of regular and daily evaluation processes. It is completed based on achievements for a certain period of time by field, technology department, and head office of outsourcing and purchasing. The regular evaluation is conducted by both employees in the field and headquarters annually, in January. A more frequent evaluation is conducted every month in the field in case of problems.

Financial Support

Lotte E&C is undertaking various measures for financial support, including adjustment of delivery unit cost, assistance in increasing sales, and improvement of payment conditions, to support suppliers' financial soundness and stable growth.

Financial Support Program

Mutual growth fund (Mixed support)

Arrange funds by depositing them in Industrial Bank of Korea (IBK), loan support with a decrease of interest rate by 2-3%

Win-Win fund (direct support)

Interest-free loan support for short-term management funds
Urgent fund support for suppliers

Network loan (Indirect support)

Loan support based on delivery performance in partnership with IBK

Active Adjustment of Delivery Unit Price

Lotte E&C adjusts delivery unit price based on the condition of adjustment of delivery unit price, defined in Article 15 of the standard contract document in the construction field. We review and accept proposed price adjustments when suppliers request raw materials or when the price of those materials fluctuates.

Support for Increase in Suppliers' Sales

Lotte E&C supports an increase in suppliers' sales through an extension of the amount of delivery, national and international market openings, etc. Particularly, we create a joint booth with suppliers at fairs and exhibitions on global market development and provide them with funding and labor force for international exhibitions. Furthermore, technologies of suppliers are applied on site to increase sales of suppliers which participated in joint technology development.

Financial Support

We provide direct, indirect, and mixed supports to boost suppliers' financial soundness and stable growth. Critically, we have managed about 40 billion KRW mutual growth funds with financial institutions to offer a low interest loan for suppliers.

Interview



“Maintain mutual growth activities for Win-Win achievements with suppliers.”

A demand for mutual growth in the construction field is increasing in light of economic democratization and cooperative relationships. As the construction field is structurally more complicated than other fields, a Win-Win relationship with suppliers is important. Our company has been in a partnership with Lotte E&C for a long time. We have also participated in Lotte E&C's mutual growth program as its best supplier for eight consecutive years. Our company reckons that some of Lotte E&C's cooperative activities, such as active communication, education, and economic support, are useful for both suppliers and other companies' mutual growth activities. Particularly, a supplier meeting, in which the CEO visits suppliers to gain an understanding of their business status and complaints, establishes the foundation of practical communication for cooperation. Low-interest support through mutual growth funds and an increase in the proportion of cash payments contribute greatly to practical management. Finally, an active investment and support for R&D should be provided to help both Lotte E&C and suppliers become healthy and sustainable companies in the long term. I hope Lotte E&C will achieve social leadership and sustainable growth through a variety of mutual growth activities.

Junseok Park, CEO, Asia Environment Landscape





Training Camp for Suppliers' Employees

Support for Education and Labor Force

Improvement in Conditions of Subcontract Payment

Lotte E&C receives payments in 100% cash from suppliers. We are also raising the ratio of cash payments continuously, and we support suppliers' smooth financial flow by ensuring payment within 10 days.

Lotte E&C believes that our suppliers' competitiveness is our competitiveness. We provide continuous training programs to strengthen integrated competitiveness with suppliers.

Management Support

Lotte E&C has provided customized management analysis programs for suppliers since we established the Management Doctor program in partnership with the Large and Small Business Cooperation Center of the Federation of Korean Industries in 2009. We promote suppliers' capacities on comprehensive management through suppliers' management analysis programs. We expanded suppliers' management analysis programs and conducted a financial consulting program for 10 suppliers in 2012. We also held a labor management consulting program for two suppliers after working to understand the needs for financial and labor management consulting.

Extension of Education Support for Suppliers

Lotte E&C conducts monthly training programs for suppliers through the mutual growth academy. The programs include a training camp to improve professional capabilities of suppliers' employees, position training to enhance business skills, certificate-related training for self-development, etc. We also provide opportunities for an overseas training program, global site visits, and exhibition participation to seek measures for joint overseas expansion with suppliers and ensure that suppliers secure future generation growth engines.

Extensive Education Support for Suppliers' Executives

We hold a mutual growth CEO seminar to help suppliers' executives build up knowledge on business. We are also running 'Mini-MBA' courses for suppliers' future executives.

Technological Support

Lotte E&C offers joint development of construction technology, patent application assistance for suppliers, etc. to ensure their business stability and provide them with long-term growth engines.

Increase in Joint Development of New Construction Technology

Lotte E&C is gaining more certificates in construction technology by the Ministry of Land, Transport, and Maritime Affairs and those in environmental technology by the Ministry of Environment through joint technology development with suppliers. We are also expanding the range of joint research and development with suppliers and supporting the onsite application of developed models and research and development funds through the systematic assistance of Lotte E&C's technology researchers. Furthermore, we provide relevant education during overseas expansion to Vietnam, the Middle East, Russia, etc. and this support is increasing..



A supplier meeting

Establishment of Fair Culture

Increase in Support of Patent Application for Suppliers

We are increasing joint patent application/registration on new technology, we and suppliers develop together. We also support patent application on new technology that our suppliers developed independently. We supported two patents for two companies in 2012. It is our goal to support more than three patents for three companies in 2013.

Lotte E&C has implemented four guidelines for the establishment of fair subcontract transaction orders between large and small companies that have been enacted and revised by the Korea Fair Trade Commission (FTC) to establish fair and horizontal partnership with suppliers. We are also putting forth efforts to promote fair culture through an employee training program on fair trade, etc.

Settlement of Agreement on Fair Trade and Implementation of Four Guidelines

Lotte E&C declared its strong will for mutual growth both domestically and globally by signing an agreement on Lotte Group's fair trade and mutual growth as well as that of transactions of construction companies in 2011. We have maintained continuous mutual growth since we signed the agreements again in 2012. We have also complied with the four guidelines enacted and revised by the FTC to establish fair subcontract transaction orders between large and small companies.

Fair Trade Education

Lotte E&C holds annual training programs on internal subcontracting laws for all employees by inviting subcontracting specialists, including the FTC. Moreover, we make an effort to establish a fair subcontracting culture through an onsite lecture circuit by external subcontracting specialists.

Extension of Exchange

Lotte E&C holds a supplier visit meeting, onsite meeting for supplier's mutual growth, etc. to listen to suppliers' opinions and increase information exchange. The CEO participates in a meeting, which is held quarterly, to promote communication and maintain our strong will for mutual growth.

Management of Various Exchange Channels

Lotte E&C is running a web portal for its suppliers (<http://partner.lottenc.com>) to increase mutual exchange of information. This idea came about after several meetings on the difficulty of frequent notification of consignment information in the construction industry with FTC officials. We share information on subcontract costs, timelines of construction, construction location, etc. with suppliers, and release public information on our new construction, to improve mutual understanding between our company and our suppliers, through our portal site. We are also performing diverse activities, including the creation of Lotte E&C's mutual growth website and management of Lotte Partners, a consultative group of excellent suppliers.

Special Issue.

Green Partnership Joint **Technology Development** with Suppliers

Corporate evolution for survival cannot be achieved through a single company's innovation in today's complicated environment, in which markets and technologies are changing quickly. Regarding this, Lotte E&C is growing its corporate value by creating shared value with suppliers. We are also sharing results of business growth collectively.

The amount of support funds for joint R&D



271,289 thousand KRW

Number of technology protection cases



32 case

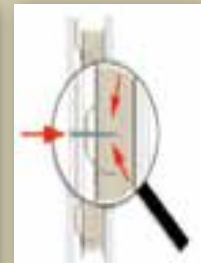
While running Lotte Partners, a cohesive group of excellent suppliers, Lotte E&C found that there were suppliers who were concerned about commercialization due to the lack of resources, although they were willing to develop technologies. To solve this problem, we provide diverse support for suppliers, including joint technology development and joint patent application, to enhance suppliers' technological capacities.

We supported 23 cases of construction methods and product development to enhance suppliers' technological capacities for the period of the agreement in 2012. Six separate research and development cases are currently underway. We have provided active technological assistance by supporting two cases of patent application costs on suppliers' independent technologies and 14 cases of joint patent registration and application with suppliers, and managing an interest-free loan program for suppliers' technology development. In particular, we have implemented a technological data escrow policy to protect the main technologies of medium-and small-sized suppliers. A total of 16 escrow contracts were concluded in 2012, which recorded the largest number in the construction industry for the same year. This proves that we are playing a leading role in technical protection policies in the construction industry. We will continue to promote the technological data escrow policy and provide technological supports for suppliers, including patent application and technology transfer, more actively in the future.

Main Achievements for Joint Technology Development in 2012

Development of Highly Advanced Dry Noise Barrier

- Participating companies and research funds
 - Lotte E&C (32 million KRW) KCC Corporation, KCC Engineering & Construction Co., Ltd (32 million KRW)
- Focus of research
 - Lightening of walls used for high-rise buildings and office buildings and technology development for walls with high levels of sound insulation.
- Research results
 - Development of a metal lath-applied structure for security
 - Development of a resilient channel
 - Development of a M/M stud structure
 - Development of a T-Silient stud
 - Promotion of patent application for element technology (one case applied and three cases promoted)
- Future plans
 - Promotion of TEST BED application : sites of KCC dormitory and Jeju Lotte hotel
 - Promotion of new technologies on development structures : selection of new technologies of MLTM and Ministry of Knowledge Economy will be promoted after inspecting the institutions
 - Increase in technology applications for our housing and construction sites
 - Establishment of advertising strategies to maximize a ripple effect



Research and Development of Eco-Friendly Floor Finishing Materials and Site Construction System

- Participating companies and research funds : Lotte E&C (25 million), Tripod (25 million)
- Focus of research : development of materials and construction methods for environmental regulations on formaldehyde, TVOCs, etc. with the use of inorganic and eco-friendly materials
- Research result : escrow of technologies registered by intellectual property rights, certification of green technology
- Future plans : apply for new technologies for contract support for new technology promotion and certification policies through the securement of site-applied achievements

Research on Application Plans of Geothermal Energy by Using a Slurry Wall

- Participating companies and research funds : Lotte E&C (14 million), Machun Construction (6 million)
- Focus of research : research on application plans of geothermal energy by using a slurry wall
- Research result : technology escrow, intellectual property rights (parent), mutual growth projects, etc.
- Future plans :
 - Securement of sources of new renewable energy technologies through joint technology development
 - A site application test based on patent applied technologies



Ethical Management

Disclosure on Management Approach

Lotte E&C's motto for ethical management is "management that reflects Lotte E&C's characteristics and makes every stakeholder love our company." Under this motto, we are working hard to earn stakeholders' trust. As a valuable company that provides practical assistance to the society, we are abiding by strict ethical management terms in an effort to be loved by everyone inside and outside our company.

Vision

Creation of an ethical company based on principle and trust

Strategy & Action Plan

Strategy	Action Plan
Establishment of an ethical management promotion system	Perform a regular check for the level of ethical management
	Detect ethical risks by department
Internalization of employees' ethical consciousness	Hold a customized training regularly
	Run a program for memorization of the code of ethics
Promotion of an ethical communication policy	Ethical agreement with suppliers
	Promote a cyber-petition system

Ethical Management

Increasingly, more stakeholders are placing demands for corporate transparency, ethics, and social responsibilities. Lotte E&C regards ethical management as a core evaluation factor—not simply an option—for sustainable growth and development. Keeping this difference in mind, we have established the foundation of ethical management to satisfy the stakeholders' demand.

Direction of Ethical Management

Lotte E&C is performing a variety of ethical management activities, based on our mission and vision, to become a company loved and trusted by every stakeholder. Particularly we are improving employees' ethical consciousness by setting an example of ethical management and executing active ethical management activities. We will establish an ethical corporate culture to become a company loved by both internal and external stakeholders.

Infrastructure of Ethical Management

Code of Ethics

Lotte has enacted and complied with the code of ethics based on appropriate behaviors and value judgments that every employee should abide by. The code of ethics consists of obligations and responsibilities of customers, stakeholders, employees, suppliers, countries, and societies. Lotte E&C classified its ethical management philosophy into six themes based on six basic ethics, including an attitude for customers; responsibilities for stakeholders, employees, suppliers, countries, and local communities; and essential ethics for employees. We also established rules of conduct to support the code of ethics.

Organization of Ethical Management

Lotte E&C regards ethical management as a core factor for sustainable management. We are operating regular training programs and inspections on ethical management and running an ethics secretariat and inspection department to handle issues in ethical management promptly and rationally. The ethics secretariat is operating a cyber-petition system, self-monitoring program, and training programs on ethical management for every employee. The inspection department performs inspections on sites and departments of headquarters, reviewing the allocation of business expenses, management status, etc.

Organization of Ethical Management

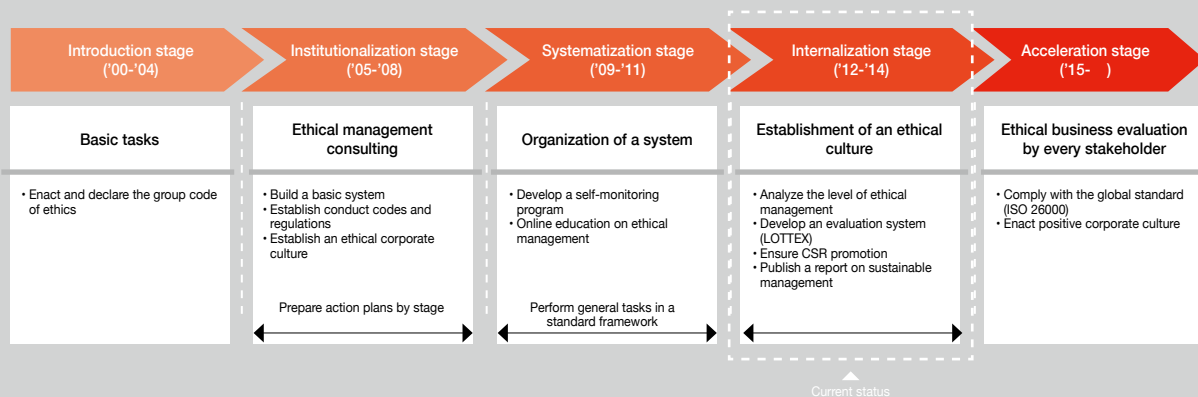


Ethical Management System

Lotte E&C operates an ethical management system to increase stakeholders' participation and promote transparent communication. The standards of ethical conduct, systems, cognition, and performance are intertwined with in the ethical management system. Its goal is to promote cooperation with internal and external stakeholders of the company.

Lotte E&C's Ethical Management Roadmap

As Lotte E&C's current ethical management is at the stage of internalization, we are establishing an ethical culture through CSR promotion, ethical management level analysis, etc. We will make a continuous effort to achieve the stage of acceleration, in which stakeholders evaluate ethical companies, through vigorous ethical management activities.





2013 Circuit Education on Ethics



Education and Cognition Internalization of Ethical Management

Customized Ethics Management Education

Lotte E&C has operated ethics management education for employees to improve ethics, recognize risks of unethical activities, and establish principles of ethical management. Particularly, we are trying to improve upon the effects of such educational programs by designing customized training programs according to audience, including sites, headquarters, site managers, site management team leaders, site construction team leaders, and new employees. 2,950 employees participated in ethics management education in 2012. The ethical management training was also conducted in 232 educational institutes and sites.

Circuit Education on Ethics

Lotte E&C began circuit education on ethics for site employees in January 2013. The most recent circuit education was held to help employees understand basic concepts of ethics and improve awareness of ethical management. The circuit education on ethics is composed of the understanding on Lotte E&C's ethical management roadmap, case studies on ethical management, employees' practical tasks for ethical management, etc.

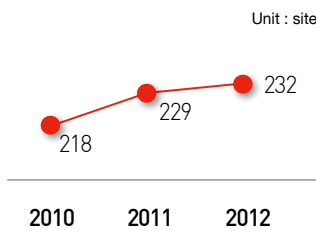
Online Education on Ethics : "Seeking positive energy : ethical management"

Lotte E&C provides an online training program for employees based on the theme "Seeking positive energy : ethical management." We will provide people to continued education for an honest organizational culture, mutual care between employees, labor-management harmony, ethical culture, internal and external customer management, etc.

Activities for the Improvement of Employees' Ethics

Lotte E&C is running an ethics program to enhance the awareness of ethical management and increase the level of consensus on it. The ethics program is operated by online participation through a website. using self-monitoring, messages, and quizzes on ethics, it will become the driving force in establishing the foundation for an ethical management culture.

The Number of Departments and Sites Participating in Ethical Management Education



Interview



"Lotte E&C will become a respected company through sustainable ethical management activities."

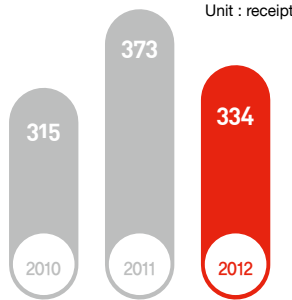
As a strong foundation lasts for a long time, ethical and transparent corporate management is regarded as necessary for business existence and growth. Lotte E&C began promoting ethical management in 2000. It accelerated the level of ethical management activities continuously by analyzing activities performed for the past decade and establishing medium-and long-term plans in 2012. Lotte E&C should consider the following activities to become the most ethical company in the future. First of all, it should apply strict standards and fairness measures to internal transactions and change its corporate culture, which focuses on individuals, to concentrate on communities. Extension of ethical management for the supply chain is also required. As it is essential to work with many suppliers in the construction industry, Lotte E&C should engage in ethical management practices together with other suppliers. It is recommended to apply the ethical management index, developed last year, to suppliers to build Lotte E&C's desire and progress of ethical management up together. I hope Lotte E&C will become a socially respected and transparent company through continuous ethical management activities.

Dongsoo Kim, Director of Sustainability and Management Center, Korea Productivity Center



Increase in Stakeholders' Participation and Communication for the Promotion of Social Ethics

The Number of Receipts in the Cyber-Petition System



Channel for Accusations and Reports on Ethical Management

Lotte E&C receives cases of ethical management violations through a variety of on and offline report channels. We are uploading notifications on results rapidly. Subjects reported include unfair task process, bribery using an employee's superior position, and every task which violates ethical standards. Lotte E&C's stakeholders can get access to the channels easily and informants' information is thoroughly protected. If informants incur a disadvantage due to their reports, we will provide rewards to restore them to their original condition or achieve a similar state. A personnel committee takes disciplinary actions depending on the seriousness of unethical activities, which are reported in accusation and report channels.

Online Channel

Lotte E&C is running a cyber-petition system, customer center, and e-mail service on its website through online channels to determine various stakeholders' opinions on ethics. Notably, over 300 reports are uploaded in the cyber-petition system annually. We are taking immediate actions on complaints related to customers' dissatisfaction due to the economic recession in the construction industry, requests for defect maintenance, improvement of suppliers' working environment and benefits, individual corruption, etc.

Offline Channel

Lotte E&C receives reports through the ethics secretariat's exclusive phone, fax, mail, and direct visit channels for informants who cannot access the online channels.

Ethical Agreement of Suppliers

Lotte E&C operates an ethical agreement program, which aims at suppliers, to promote social ethics. We require both existing and new suppliers to sign the ethical agreement. Inspections for the conditions set out in the agreement will be conducted annually. We will expand suppliers' participation in the ethical agreement, which is currently limited, into every site and department from July 2013. We will use it to evaluate suppliers' indices of ethics.



Operation of Gift Return Center and Suppliers' Anti-Gift Exchange Campaign

Lotte E&C is running a gift return center under the ethics secretariat to return gifts to senders when employees receive task-related gifts. When the return is impossible, we contribute it to society by donating it to the less fortunate. We are also conducting a suppliers' anti-gift exchange campaign to prevent bribery and establish an environment to promote social ethics.

Case Study. Lotte E&C's analysis system for the level of ethical management : LOTTEX

Lotte E&C developed the Lotte Ethics Index (LOTTEX), a system which analyzes the level of policies, systems, and employees' awareness and compliance on ethical management. Our score on the ethical management analysis through the system was 80.1. The score on basic ethics¹⁾ was 82.2 while that of social ethics²⁾ was 78.1. Survey results act as a communication channel with stakeholders and an important foundation for our sustainable growth. A survey is regularly conducted every November in connection with our ethical management website.

Characteristics of the Analysis System for the Level of Ethical Management



Reflection of Various Global Policies and Guidelines on Ethical Management and CSR

- Application of domestic and international standards of ethics and CSR, including regulations, policies, evaluation standards, and guidelines
- Securement of response abilities on changes of future management environment
- Decrease of loss from external inspection and evaluation



Role as a Catalyst for Bi-Communication

- Determine expectations of Lotte E&C's internal and external stakeholders and promote communication between them
- Enhance the connection of analysis results, improvement issues, and practical tasks
- Estimate effects of actions immediately



Reflection of Effectiveness and Flexibility for the Operation of Regular Analysis

- Perform flexible analysis design through systematic structuring and index design
- Develop an in-depth evaluation sheet in which current status and issues can be found at the same time

1) Basic ethics : compliance with the legal system and ethical responsibilities through appropriate and transparent corporate management

2) Social ethics : promotion of management in which companies, stakeholders, and future generations can achieve growth together, based on economic, environmental, and social responsibilities

Employees

Disclosure on Management Approach

Lotte E&C regards its employees as precious assets as well as its future. We are establishing a culture that respects employees' creativity and autonomy as an index for personnel and organization management. We are placing emphasis on rewards based on employees' capabilities.

Vision

A global company which shares and dreams about hope

Strategy & Action Plan

Strategy	Action Plan
A culture which respects diversity	Establish policies for employment (recruitment based on the Charter of Diversity)
Harmony and balance between work and life	Enhance GWP activities (family-friendly management and employee pride program)
Social responsibilities as a global company	Extension of donation projects for education



Human-Focused Organizational Culture

People are Lotte E&C's source of corporate competitiveness. As we regard employees as our most precious assets, we are recruiting excellent employees on the basis of fair employment without discrimination. We are also working vigorously to discover next-generation leaders by providing diverse education programs after hiring employees.

Preferred Employee Characteristics

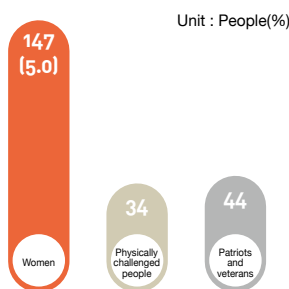
Lotte E&C places an emphasis on employees' potential to create the future rather than their present status. Our preferred employee characteristics include passion and responsibilities which will achieve both personal and social growth.



Employment without Discrimination

Lotte E&C recruits employees based on fairness, diversity, rationality, and suitability. We have been fulfilling corporate social responsibilities by enhancing the diversity of employee securement through the diversification of recruitment methods and channels and complying with legal employment methods such as special recruitment for physically challenged people and veterans since 2012. The number of employees shows a continuous increase annually. There was a total of 2,950 employees as of the end of 2012. The number of potential candidates to be hired for full-time employment was 207 in 2012.

Social Minorities (2012)



Fairness

Lotte E&C pursues fair recruitment without discrimination on gender, educational background, location, disability, etc. Importantly, we abolished discrimination on educational background in public employment based on connectivity to business. We are also relaxing educational background requirements (from university graduation to high school graduation) for the recruitment of new employees and increasing the range of recruitment for excellent regional candidates and talented women to discover professional employees who have fewer opportunities in the employment market.

Rationality

We are managing employment methods and candidate selection through sophisticated selection methods based on rational standards including an interviewer certification policy, diversification of interview techniques, and Lotte's personality and aptitude test (L-TAB).

Suitability

We are trying to hire employees who are suitable for their tasks, and not simply excellent employees in general, through capability-based employment.

Case Study. Compliance with the Act of Diversity for employment without discrimination

Lotte E&C is complying with Lotte Group's Act of Diversity, which states its acceptance of individual diversity and abolishment of discrimination. This is very meaningful, as Lotte Group was the first company in Korea which made a stipulation regarding respect for employee diversity and the abolishment of discrimination. We have implemented and managed varied channels for employment, including open recruitment for new employees, JA open recruitment, internship recruitment, recruitment for discharged officers and female officers, and recommendation by a university president or professor, to secure diverse and unique employees.



Lotte Group's Act of Diversity ▶

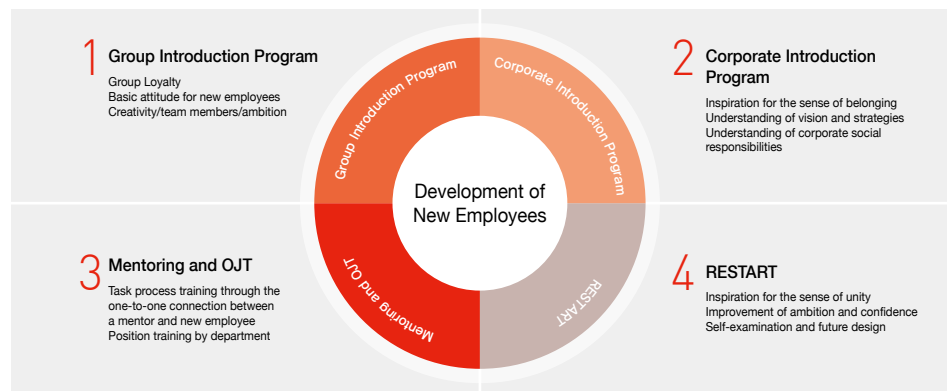


Capability Enhancement

Lotte E&C provides various education programs to promote talented employees that improve competitiveness at the global level. The employee enhancement program is split into new employee training, leader capability training, work capability training, and global capability training. We are using a specific roadmap for the development of human resources to encourage employees to become innovative leaders of change and innovation.

New Employee Training

Lotte E&C is operating a mentoring system for new employees to strengthen their understanding of our company and promote fellowship between employees. We set Wednesday of the fourth week of every month as a mentoring day and provide activity funds to promote the program. We are also operating task process training, in which a mentor and a new employee have one-to-one meetings, and position training by department to encourage employees to adapt to the work environment quickly. We are also running take-off education to improve employees' professional mindset, adventurous approach, and confidence.



Leader Capability Training

Lotte E&C is operating training courses by work areas, such as personnel, finance, marketing, and strategy, to strengthen work capabilities. We are also managing capability enhancement training by level to strengthen capabilities required for each level based on promotion. Furthermore, we are establishing instructor-based task training by encouraging task specialists in each work area to become internal instructors.

Work Capability Training

Lotte E&C operates training courses for site managers and engineering certificates for technical professionals. 35 employees completed training for site managers in the previous year. 49 employees participated in the training program for the acquisition of certificates in 2013. Eight employees acquired engineering certificates while 12 employees took international engineering certificates such as LEED AP in 2012.

Global Capacity Training

Lotte E&C manages programs to promote globally talented employees through selection and concentration to make effective actions for the demand for global human resources due to the expansion of international business. First of all, we are enhancing our own global school for languages, which includes English, Chinese, and Vietnamese. We are using group training actively for minority languages such as Russian and Indonesian. We will maintain training courses for writing, PT, negotiation, and FIDIC* to strengthen international business skills through practical task education. It is also our plan to establish an atmosphere of continuous self-development to encourage employees' global business mindset.

* Federation Internationale Des Ingenieurs-Conseils (FIDIC)

Roadmap for Global Training Courses

Lotte E&C enhances its internal training and group training to strengthen employees' global work capabilities. We are also running education programs on languages, societies, and cultures to promote the understanding of international culture and etiquettes.

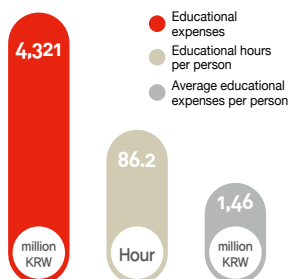
Division	Internal training		Group training		Submission of foreign language score reports
	Language	Task/location research (society, culture, etc.)	Language	Task/location research (society, culture, etc.)	
Executive	One-to-one Conversations				
S level	English learning over the phone	Special global lecture - etiquette	Global school - second foreign language	LBCS	Submission of language score records by executive employees
M level	In-company language learning courses	FIDIC	Build up	VRIC-research group	
SA level	Global EXPO (part of new employee training)	Regional expert program - constructors	Ordinary Language Program	GLEP	Submission of SA
A level					
Note	<ul style="list-style-type: none"> ▷ Completion of necessary education, including an intensive course, before being deployed to international sites ▷ Additional review on Spanish, Indonesian, etc. for intensive courses, except existing intensive courses for Chinese and Vietnamese 	<ul style="list-style-type: none"> ▷ Multilateral review on the implementation of training programs for the awareness of global culture 	<ul style="list-style-type: none"> ▷ Selection of number and management for education based on the plan for resident employee deployment 	<ul style="list-style-type: none"> ▷ Increase in the number of SA-level employees (support for autonomy and costs) 	

※ GLEP : Global Lotte Expert Program / LBCS : Lotte Business Communication Skill
 ※ VRIC : Vietnam, Russia, Indonesia, China, Indonesia

Main Educational Achievements

Lotte E&C supports self-directed learning and provides diverse education programs to strengthen employees' capabilities. About 400 cyber-learning courses on technology, management, IT, and language education are provided in E-class, an online education channel, for self-development. Employees are encouraged to invest in self-development and become more passionate about learning through the acquisition of engineering certificates, support for graduate school expenses, etc. The total amount of employee education expenses was 4,321 billion KRW in 2012. The amount of time for education per person was 86 hours, an increase of 7 hours over the previous year. We will enhance language learning programs to train globally talented employees and work training programs to prepare for future growth.

Educational Achievement (2012)

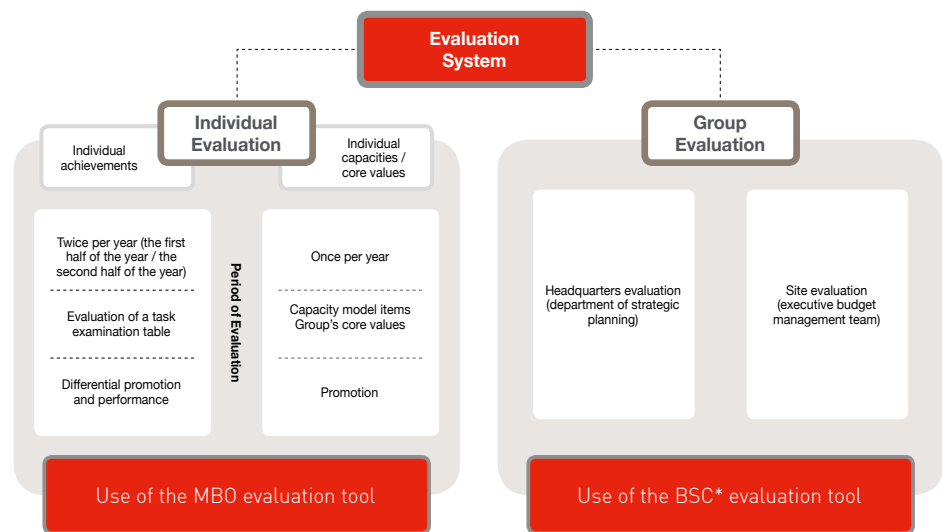


Fair Performance Evaluation and Reward

Lotte E&C operates an evaluation management process, including a payment system without discrimination and a performance-based reward system, to establish an organizational culture in which employees show their skills and receive fair and secured rewards.

Performance Evaluation

Lotte E&C's performance evaluation is held twice per year. Evaluation results are reflected in movement, deployment, promotion, reward, education, etc. We are using various evaluation methods, such as performance evaluation, capacity evaluation, and core value evaluation, for fair performance evaluation. We made an evaluation interview compulsory for employees before and after the annual evaluation. We are also operating regular education for evaluators and conducting evaluation reviews.



*BSC : Balanced Score Card

Improvement in welfare benefits (2012)

Extension of a morale-boosting system

- Extension of connected programs(watching a film, cooking program, ski camp, etc.)

Extension of selective welfare system

- Implementation of professional and locally recruiting jobs

Improvement in educational expenses

- Increase in the maximum limit of educational funds for a university
- Abolish the limit of the number of children for support
- Support for scholarships

Promotion of the use of annual leave

- Implement a vacation for the improvement of creativity

Improvement in selective welfare system

- Turn the selective welfare system into essential welfare with common items
- Increase the number of group insurance registrations for professional and locally recruiting positions

Revision of regulations for employees deployed overseas

- Enhance supports for aviation fare in case of a regular vacation to third countries

Reward

Lotte E&C motivates employees by providing them with systematic evaluation and rational rewards based on fair performance evaluation. The amount of payment for new employees who graduated from a university is as high as 308% of the legal minimum wage. There is no gender discrimination for payment.

Welfare Benefits

Lotte E&C improves employees' satisfaction by managing welfare benefits, which creates a Win-Win relationship between the company and its employees. Welfare benefits consist of four compulsory insurances : national pension, health insurance, unemployment insurance, and industrial accident compensation insurance; and selective and basic benefits. We provide conditions for the best jobs and treatment by operating a selective benefit system in which employees can select preferred benefits within a certain amount of money. We have provided temporary employees with the same condition as permanent employees since we implemented the selective benefit system for temporary employees to improve cooperative community spirit in 2012.

Support for Retired Employees

Lotte E&C deposited employees' pensions, other than retirement allowances, in a retirement insurance to ensure employees' benefits guarantee and reduce corporate tax even before a retirement pension was implemented. As corporate tax benefits of the retirement insurance expired in December 2012, we implemented the retirement pension system on December 31, 2010. We are managing principal-and interest-guaranteed products by implementing defined benefit (DB) pensions to minimize employees' confusion on the change of the system and secure the existing amount of retirement pensions. We are also supporting retired employees by running an online website and office to boost their loyalty to the company and strengthen the network through respectful treatment of them instead of disconnection with the company after their retirement.

Establishment of Open Organizational Culture

Main Achievements of a Joint Labor-Management Conference (2012)

- Diversification of medical examination programs
- Improvement in conditions and the amount of certificate compensation
- Encouragement for groups to watch professional baseball games / implementation of mini-tournaments
- Increase in payment and implementation of the reward system based on position
- Creation of the 2013 vacation plan and the half-day's leave system
- Extension of employee morale-boosting programs

Lotte E&C develops a Win-Win culture through open management activities based on trust. As we regard people as the foundation for future corporate value creation, we not only protect employees' rights, but also provide many channels to reflect employees' complaints and interests.

Operation of the Joint Labor-Management Committee

Lotte E&C pursues a horizontal labor-management relationship in which employees and executives respect each other equally based on participation and cooperation. To achieve this, we are running a joint labor-management committee which includes five executive representatives and five employee representatives. We held joint labor-management committee meetings five times in 2012, and we discussed main issues related to the increase of excellent suppliers, improvement in certificate compensation, increase of payment, implementation of the position-based reward system, establishment of the vacation plan and half-day's leave system, and extension of employee morale-boosting programs. We will continue to hold joint labor-management committee meetings regularly to discuss issues on a joint labor-management schedule, discussion, enhancement and extension of welfare facilities, management achievement, main business schedule, etc.

Management of the Grievance Settlement System

Lotte E&C always pays attention to employees' problems and complaints in order to establish a culture in which employees are respected. We are operating online and offline grievance settlement channels which ensure anonymity with absolute security. For online channels, we send official documents on the implementation of the grievance settlement system monthly to employees to encourage them to discuss their problems in a comfortable atmosphere. Once a counseling request is submitted, we take actions within 10 days of the submission date. We also ensure the enhancement of anonymity in the offline grievance settlement system to facilitate practical counseling. As a result, we have completed eight counseling cases since the system was implemented in 2011.

Implementation of the Creative Management Day

Lotte E&C has implemented a creative management day to exchange examples of innovation and provide a communication channel for employees. The creative management day is held by department or site monthly. General managers, team leaders, and team members participate in it to exchange current management issues. We conducted activities such as suggestion and performance monitoring for innovative project evaluation and sharing of opinions in 2012.

Joint Labor-Management Cooperation Program

Lotte E&C held the "One Mind Advance" contest to motivate employees to strive for successful achievements of management goals and vision leading up to 2015, and establish an organizational culture full of ambition and passion. We held diverse activities, such as special lectures by famous speakers and the CEO, a place for harmony, and a climbing contest for goal attainment to exchange corporate and headquarters management strategies on the theme of "One Direction, One Mind, and One Step." We also held the "One Mind" tournament track meet, which consisted of a tug of war, group jump rope, and relay cooperation game, to build labor-management trust and boost a sense of unity.



Lotte E&C's employees cheering for their teams

Special Issue.

Exciting Workplace

Lotte E&C strives for the establishment of an exciting environment in which employees can work happily, based on family-orientated style organizational culture. We are also encouraging open management to promote communication with employees. Furthermore, we continue to provide various cultural activities to support, motivate, and satisfy our employees.



Cultural Athletic Event "Fun Day"

Employee-Oriented Workplace

Cultural Athletic Event "Fun Day"

Lotte E&C holds cultural athletic events annually to boost employee morale and strengthen organizational solidarity. We prepare the events by department or site and operate various programs, including viewings of films, plays, and musicals, group viewings of sports and visits to famous restaurants. In addition, the CEO participates in one of the events to encourage harmonious atmosphere in which employees can share pleasant memories together.

Morale-Boosting Program

Lotte E&C has conducted morale-boosting programs to improve employees' loyalty and strengthen their pride in the company. Particularly, we increase employees' satisfaction and enhance their morale through birthday and wedding anniversary events in which every employee can participate. We give a congratulatory message under the name of the CEO and gifts for a single employee on his or her birthday. We also provide a flower bouquet for a married employee on his or her wedding anniversary.

Maternity Protection

Lotte E&C has provided various activities to solve a low birthrate problem, which is also a national problem, and establish a female-friendly work environment in light of the increase of female employees. In particular, we are reducing child-rearing pressure on employees by strengthening benefits related to childbirth and childcare, for employees and their colleagues.

We made the use of maternity leave for a year mandatory followed by a leave before and during childbirth in 2012. We also conducted activities for maternity protection, such as online education, which covered information for reinstatement and an offer for congratulatory gifts for childbirth. Furthermore, we facilitated a mandatory family-care leave system and a request to reduce working hours during childcare instead of maternity leave.



One Night, Two Days Family-Friendly Program

Family-Friendly Corporate Culture

One Night, Two Days Family-Friendly Program

Lotte E&C is running family-friendly programs in which employees can participate with their families. We held a one night, two days program in which families joined various activities, such as a visit to the Lotte Super Tower and Lotte history hall, and an experience at Aqua Garden in Lotte Buyeo Resort, after receiving employees' requests for participation in 2012. The program was held four times in 2012. Regarding the increasing number of employees participating in the program during their children's holidays, we will hold it six times per year in the future from 2013.

Cooking Lesson with Children

Lotte E&C holds a cooking lesson event in which parents and children can participate together to help employees build up family affection and memories. 20 employees are selected for participation. A cake-cooking event was held four times per year, twice in February and August each.

Interview



"A family-friendly program strengthens family pride"

I participated in a Lotte E&C's family-friendly program and took a trip with my family for one day and two nights. As Lotte E&C's family-friendly program aimed to enhance family pride and achieve family-friendly management, I was impressed by various experiences and entertainment programs which satisfied its goals. On the first day, we went on a field trip to the Lotte World Tower and history hall and enjoyed healing time, talking a walk around a white sand beach in Daecheon. On the second day, we had an exciting and pleasant time taking a rail bike. It was more meaningful, as I could tell my family about my work, company history, and goals as a husband or father. I also shared meaningful stories and memories with other employees in other departments and sites through this trip. I am sure this opportunity will become a bridge of communication which connects the sites and headquarters and provides a foundation for Lotte E&C's growth. I hope Lotte E&C continues to operate family-friendly programs.

Sanghan Lee, Manager at the Zone 2 site in Dongjin, Saemangeum



Community

Disclosure on Management Approach

Lotte E&C has put forth efforts to make our society warmer and richer through a variety of social contribution activities and sharing management. We will continue to fulfill social responsibilities through honest social contribution activities to satisfy our management philosophy.

Vision

A love-sharing company achieving growth with local communities

Strategy & Action Plan

Strategy	Action Plan
Establishment of core social contribution projects	Implement a Love House of Hope volunteering program
	Promote a love-sharing and family-adding program
Vitalization of volunteering organizations	Manage one volunteering team by one site and one department
Establishment of the foundation of social contribution	Establish donation culture through the Matching Grant system



Strategic Social Contribution

Lotte E&C has executed distinguished social contribution activities, which reflect employee capacities and characteristics of the construction industry, beyond plain activities to complete social responsibilities, such as employment increase through business or simple donation.

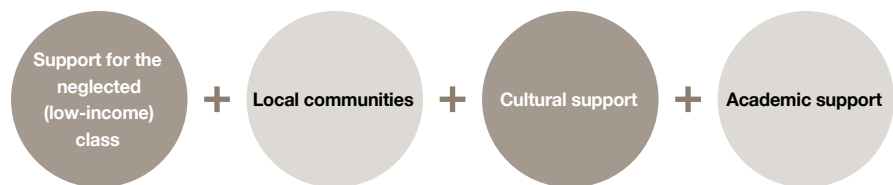
Principle of Social Contribution

Lotte E&C's principles for social contribution include social restoration of a part of profits through the completion of corporate social responsibilities; voluntary participation, which boosts pride for social contribution activities including honesty, volunteering, and passion which are based on Lotte Group's management philosophy. We are holding social contribution activities based on these principles.



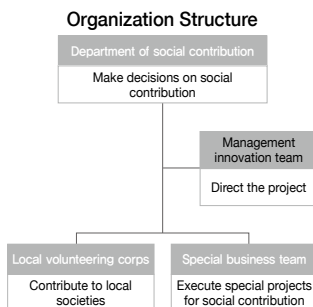
Social Contribution System

Lotte E&C is performing various sharing management activities by selecting four core fields, including supports for the neglected (low-income) class, welfare facilities, culture and arts, and education, under the vision of "A love-sharing company achieving growth with local communities."



Organization of Social Contribution Activities

Lotte E&C manages a social contribution subcommittee under the CSR committee, which executes and manages CSR internally. The social contribution subcommittee has held different activities, including strategy establishment for social contribution activities, operation management of a love-sharing volunteering corps, a corporate volunteering team, establishment and implementation of plans on special projects for social contribution, fund-raising, and management for social contribution.



Love-Sharing Volunteering Corps

Lotte E&C organized a love-sharing volunteering corps to overcome the limits of locally separated volunteering and achieve sharing management which clearly reflects the characteristics of the construction industry. In particular, Seoul CS and Daegu CS teams are supporting children's facilities by conducting replacements of screens, wallpaper, etc. They are also conducting Mecenat activities which support a cultural life for the neglected class. The love-sharing volunteering corps is organized and managed actively at sites around Korea. 42 volunteering teams completed 184 volunteering activities in 2012.

Matching Grant

Lotte E&C operates a matching grant system, in which the company contributes funds equal to the part of their income that employees save for social contribution funds. Love-sharing funds prepared in unison by the company and employees are used for various social contribution activities of the love-sharing volunteering corps, a corporate volunteering organization.

Local Community Contribution Activities

Lotte E&C performs sharing management for social restoration of corporate profits. We are achieving the ideal of sharing and fulfilling social responsibilities as a corporate citizen by holding continuous activities, including volunteering, which reflects the characteristics of the construction industry, cultural activities, a briquette sharing activity, and a Mecenat activity.

Briquette of Love Sharing Activity

Lotte E&C holds a Briquette of Love-Sharing activity by raising funds with site employees annually. We conducted the Briquette of Love-Sharing volunteering activity in Maechookji town in Beomil-Dong, Dong-Gu, Busan, and 104 town in Junggyebon-Dong, Seoul, to share warm affection with our isolated neighbors in 2012. 200 employees donated 40,000 briquettes of love and directly delivered briquettes to about 110 houses. The briquettes were prepared by love-sharing funds raised by the matching grant system, in which the company contributes funds equal to the part of their income that employees save for social contribution funds.

Cultural activities

Lotte E&C is running a 'castle gallery', which is a cultural space for local citizens, to share social values with local societies. The castle gallery is the permanent cultural space in which various events, such as lectures, lessons, exhibitions, and shows, are held. It provides diverse cultural education lessons aimed at children and adults in local societies.

Mecenat Activities

Lotte E&C is conducting Mecenat activities which support a cultural life for the neglected class. We invited 400 poor neighbors in Daegu to watch cultural shows and held a charity concert bazaar that supported both the poor and small art organizations in 2012.

Results of Social Contribution Activities

Lotte E&C has been trying to give the care and love we received from society back to many stakeholders through social contribution activities. We spent approximately 1.6 billion KRW for social contribution, and 1,903 employees participated in social contribution activities in 2012. We will continue to hold social contribution activities to share values with local communities and comply with social responsibilities.



Interview

"I hope Lotte E&C continues to hold social contribution activities which use characteristics of the construction industry."

Lotte E&C supports house repair for the housing vulnerable class in Seodaemun-gu through an agreement with the I WISH Warm Seodaemooon project run in partnership with Seodaemn-gu. This project is a customized support project which satisfies sponsors' and consumers' WISH and refers to our WISH for Seodaemooon to be a happy and warm place. It is meaningful, as we established social infrastructure by actively using Lotte E&C's achievements. The house activity, conducted with local self-support communities, is especially expected to create positive Win-Win effects for Lotte E&C, beneficiary families, and self-support communities, as it secures local self-support communities' profits. It is recommended for Lotte E&C to execute active social contribution activities which reflect on its professionalism and characteristics as well as donation activities which support the socially disadvantaged class for its sustainable growth. I hope Lotte E&C becomes a corporate citizen which achieves growth and shares values with local communities

Sanghee Jeong, manager, Welfare Policy Division, Seodaemooon-gu



Special Issue.

Love House Project, a Social Contribution Activity which Reflects Lotte E&C's Core Value

The Love House project is operated by funds raised through our employees' matching grant system. We conducted volunteering activities by visiting financially disadvantaged households in Seoul, Busan, etc. in 2012.

Lotte E&C has conducted social contribution activities which use characteristics and advantages of the construction industry. Notably, we run the Love House of Hope project, which conducts activities such as wallpapering and tile replacement, for low-income families and welfare facilities throughout Korea. We are complying with social responsibilities as a corporate citizen through continuous sharing activities.



The Number of Beneficiary Households for the Love House of Hope Project

7 households

Seoul – Gwangjin-gu

Lotte E&C also ran the House Repair of Hope volunteering program, in which employees visited low-income households in Gwangjin-gu, Seoul. 100 employees and directors of each department participated in the activity, which was a meaningful opportunity to inspire employees' sense of unity and realize the importance of our social responsibility-focused efforts. It was held by each department to promote volunteering activities through sharing. 100 employees visited seven low-income households to work on a volunteering activity which improved the housing environment based on the characteristics of the construction industry. We completed volunteering activities, including wallpapering; replacement of floor covers, repair of bathroom and kitchen equipment, and old electric equipment; and house cleaning, despite hot weather and physical fatigue. We also delivered daily necessities, including rice, instant noodles, and toilet paper to each household.

Busan – Dong-gu

Lotte E&C participated in a house revival campaign in Busan and conducted the House Repair of Hope volunteering activity, in which employees visited low-income households. Our 70 employees who worked in Busan visited five households, including one occupied by a multicultural family, in Dong-gu, Busan, to volunteer in ways such as wallpapering, replacement of floor covers and boilers, repair of kitchen equipment, and house cleaning. We also delivered necessary goods for winter to each household. This activity was held to support the revival of the original downtown in Busan through sharing. We will continue to hold the activities to make more neighbors happy.

5 households

Appendix

75	Key Performances of Sustainable Management
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79	GRI Index
83	Associations and Awards

Key Performances of Sustainable Management

Economy Despite the continued economic downturn in the construction industry in 2012, Lotte E&C pursued growth, profitability, and stability of the company through fostering businesses for new growth and seeking financial soundness. As a result of the endeavors, we achieved sales of KRW 3.9 trillion in 2012, an increase of 2% compared to the last year.

Unit : million KRW

Item	2010	2011	2012	
Sales	3,664,606	3,795,483	3,872,573	
Gross profit	340,913	348,801	404,131	
Operating income (EBIT)	137,049	120,842	178,847	
Earnings before tax	12,509	38,026	24,157	
Net income	(86,911)	27,798	15,285	
Total assets	5,693,635	5,754,148	5,303,415	
	Total	7,120,000	4,966,100	5,472,000
Orders	Domestic orders	6,930,300	4,205,800	4,774,100
	Overseas orders	189,700	760,300	697,900
Economic performance distributed	2,796,465	3,301,240	3,091,576	

Society Lotte E&C forges a trusted relationship with various stakeholders including customers, partner companies, employees, and local communities through continuous communication sharing the value created with them.

Itemw	Unit	2010	2011	2012
Number of employees	Persons	2,943	2,944	2,950
Number of permanent employees ¹⁾	%	70.2	70.8	73.3
Number of contract employees	%	29.8	29.2	26.7
Number of male employees	Persons	2,781	2,804	2,803
Number of female employees	Persons	162	140	147
Number of disabled hired	Persons	28	30	34
Female employee ratio	%	5.5	4.8	5
Female executive ratio ²⁾	%	0.2	0.6	1
Male employees resigned and moved elsewhere (permanent)	Persons	154	171	125
Female employees resigned and moved elsewhere (permanent)	Persons	8	7	4
Number of employees trained	Person	2,943	2,944	2,950
Employee training expenses	Million KRW	2,974	3,706	4,321
Training hours per employee	Hour	75	79	86
Return rate after maternity leave	%	85	75	100
Rate of employees who have been working over 12 months after returning to work	%	64	67	83
Number of employees participated in ethical management training	Persons	2,943	2,944	2,950
Number of violations of ethical practice	Case	0	14	12
Number of local employees	Persons	93	128	118
Social contribution amounts	1,000 KRW	-	615,712	1,644,031
Number of employees participated in social contribution activities	Persons	-	860	1,903
Happy call satisfaction	%	88	88.3	86

1) Executives and permanent-contract workers are included in the regular employees

2) Female executives include managers (senior managers) or higher levels

Environment

Lotte E&C conducts various activities such as reinforcement of safety management for climate change, development and commercialization of green technology under a vision of 'Green Life 2018 in LOTTE' for green management.

	Category	Unit	2010	2011	2012
Material consumption	Ready-mix concrete	m ³	2,257,883	1,985,530	2,011,156
	Cement	ton	64,350	92,500	118,275
	Aggregate	m ³	193,035	256,339	171,735
	Asphalt concrete	ton	240,037	302,235	268,509
	Sand	m ³	38,630	94,091	152,164
	Rebar	ton	237,542	184,811	220,978
	Plaster board	board	873,615	1,961,220	844,092
Recycled aggregate consumption	Recycled aggregate consumption	m ³	10,122	15,031	7,052
Water consumption	Water and sewage consumption	ton	811,741.530	631,534.242	1,011,815.750
	Underground water consumption	ton	27,018.970	95,709.412	147,125.147
Energy consumption	Total	TJ	1,242	1,325	1,333
	City gas (LNG)	TJ	26	17	48
	LPG	TJ	2	2	1
	Gasoline	TJ	6	7	7
	Diesel	TJ	4	5	5
	Kerosene	TJ	14	19	12
	Electricity	TJ	1189	1276	1260
Waste generation	Waste concrete	ton	237,673.13	266,587.36	3,388,780.77
	Waste asphalt concrete	ton	39,447.08	53,419.67	37,003.09
	Wood wastes	ton	6,698.89	6,054.43	4,768.28
	Waste synthetic resins	ton	2,828.57	3,717.07	6,417.39
	Waste soil and stones	ton	61,730.92	104,945.79	7,444.38
	Construction sludge	ton	789.09	1,210.49	389.04
	Roof tile wastes	ton	-	-	372.02
	Tile/ceramic wastes	ton	-	-	15.16
	Waste bricks	ton	-	-	364.36
	Waste blocks	ton	-	-	600.92
	Textile wastes	ton	27,853.36	29.76	232.6
	Waste boards	ton	771.72	592.05	716.61
	Waste glass	ton	6.65	-	-
	Mixed construction waste	ton	83,905.71	130,948.46	69,682.50
Greenhouse gas emissions	Total	tco ₂ e	61,495.5	64,128.4	64,494.7
	Scope1 (direct emissions)	tco ₂ e	3,114.9	3,009.7	4,139.5
	Scope2 (indirect emissions)	tco ₂ e	58,380.6	61,118.7	60,355.2
Accident rate	Accident rate	%	0.12	0.22	0.11

* Scope of data collected : 201 sites in 2010, 221 sites in 2011 and 235 sites in 2012

Assurance Statement

Introduction Det Norske Veritas Certification Ltd. (hereinafter referred to as 'DNV') is commissioned to carry out the verification on LOTTE CONSTRUCTION & ENGINEERING Co., Ltd. (hereinafter referred to as 'LOTTE E&C') Sustainability Report 2013 (hereinafter referred to as 'the Report'). LOTTE E&C is responsible for the collection, analysis, aggregation and presentation of all information within the Report. DNV's responsibility in performing the work commissioned is solely to the management of LOTTE E&C, in accordance with terms of reference and scope of work agreed. LOTTE E&C's stakeholders are the intended recipients of the assurance statement.

Scope of Assurance This Assurance Engagement covers data and information from the calendar year 2012. The scope of DNV's Assurance Engagement, as agreed with LOTTE E&C includes the verification of :

- Data and activities related to the environment, health and safety management, social aspects, and corporate governance issues that refer to the period between January 2012 and December 2012 as contained in the Report.
- Evaluation of the reporting principles for defining the sustainability report content and the quality as expressed in the Sustainability Reporting Guidelines GRI G3.1.
- Evaluation of Accountability Principles and Performance Information (Type 1) with a moderate level of assurance, according to AA1000 Accountability Principles Standard 2008 and AA1000 Assurance Standard 2008.
- Check of GRI Application Level

Limitations The audit is conducted in a manner to verify data and information made available by LOTTE E&C. The visits to subsidiaries and projects sites are not made in the course of verification. The verification is conducted on the data and information compiled for the auditors' review and verification of baseline data was not included in the scope. No external verification activities related to stakeholder dialogue or to LOTTE E&C's suppliers, contractors and any third-parties mentioned in the Report are not conducted. Any financial information from LOTTE E&C's annual report and company reporting on operations in 2012 or other sources are not included in the scope of the Assurance. Economic performances based on the financial data are cross-checked with internal documents and the audited financial statements. The assurance engagement is based on the assumption that the data and information provided to us is complete, sufficient and authentic. Hence, our conclusion is based on the discussion with management of LOTTE E&C and our review of sampled documents provided by LOTTE E&C.

Verification Methodology This Assurance Engagement was planned and carried out in accordance with AA1000AS(2008). The Report is evaluated with regard to the following criteria :

- Adherence to the principles of Inclusivity, Materiality and Responsiveness with Moderate level of assurance as set forth in AA1000AS(2008)
- The GRI G3.1, specifically with respect to all the requirements for the application level

As part of the verification, we examine and review documents, data and other information made available to DNV by LOTTE E&C. We perform sample-based audits and we interview the personnel who are involved in the operational management of matters covered in the Report. The verification is conducted at Headquarter of LOTTE E&C. Our verification is carried out from May through July 2013.

Conclusions In DNV's opinion, and based on the scope of this Assurance Engagement, the Report represent a reliable and fair representation of LOTTE E&C's sustainability performance in 2012. DNV confirms that the Report meets GRI G3.1 Application level 'A+'. Further conclusions and observations on the adoption of reporting principles are made below;

Stakeholder Inclusivity

LOTTE E&C has engaged with a wide range of stakeholders. Stakeholder communication channels are stated in detail in the Report. 4 Stakeholder groups which are Customers, Suppliers/Contractors, Employees and Local communities are identified. LOTTE E&C identifies the interest of stakeholders by engaging them into various ways. Stakeholder engagement is conducted independently. In our view, the level at which the Report adheres to the principle of Inclusivity is 'Acceptable'.

Materiality

External significant issues are identified with 3 step approaches. External and internal sustainability issues are gathered and analysed. Core issues are evaluated through the materiality determination process. The output of the process clearly brings out material issues. The Report generally provides an account of performance on the issues that are most significant to LOTTE E&C and which are the most relevant to its stakeholders. In our view, the level at which the Report adheres to the principle of Materiality is 'Good'.

Responsiveness

Stakeholders' views, interests and expectations sought from stakeholder communications are considered in the preparation of the Report and in the formulation of LOTTE E&C's sustainability management approach. The Report communicates the response on material issues. LOTTE E&C needs to establish targets corresponding to respective material issues and measured the performances so that progress of sustainability management can be presented to the stakeholders. In our view, the level at which the Report adheres to the principle of Responsiveness is 'Acceptable'.

Completeness

The scope and boundary of the Report cover the issues and activities that are of most significance to LOTTE E&C and relevance to its stakeholders. No material omissions are found in data or information verified. It is recommended to expand the reporting scope to all subsidiaries. In our view, the level at which the Report adheres to the principle of Completeness is 'Acceptable'.

Principle of report quality

Data and information presented in the report are generally reliable. Presentation through graphics and charts for the purpose of comparison is adequate. However, more frequent updates of data and information needs to be made. Furthermore, internal assessment of data and information need to be implemented in order to improve the data quality. In our view, the level at which the Report adheres to the principle of Neutrality and Reliability is 'Acceptable'.

Opportunities for Improvement

The following is an additional summary from the observations and opportunities reported to LOTTE E&C's management. However, these do not affect our conclusions on the Report and are provided to encourage continual improvement.

- Set up the objectives for sustainability vision and strategy so that the progress of achievement can be at least annually measured and reported.
- Establish documented procedure for accounting and reporting criteria for data gathering so that the data quality can be improved.

Statement of Competence and Independence

DNV 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 was not involved in the preparation of any statements or data included in the Report except for this Assurance Statement. DNV maintains complete impartiality toward stakeholders interviewed during the verification process. DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Assurance Statement.

Seoul, Korea
July 2013

In Kyoon Ahn
Country Manager



A handwritten signature in black ink, appearing to read 'In Kyoon Ahn'.

Note : Assurance engagement was conducted based on the Report written in Korean. In the event of ambiguity or contradiction in the Report between English version and Korean version, Korean one shall be given precedent.


GRI Index


● Fully reported ● Partially reported ○ Not reported

Profile					
Indicator					
	Number	Content	Page	Reporting rate (%)	Remarks
Strategy and Analysis	1.1	Statement from the most senior decision maker of the organization	4,5	●	
	1.2	Description of key impacts, risks, and opportunities	4,5	●	
Organizational Profile	2.1	Name of the organization	6,7	●	
	2.2	Primary brands and products	16-18	●	
	2.3	Operational structure	6,7,16-18	●	
	2.4	Location of organization's headquarters	6,7	●	
	2.5	Names of countries with major operations	6,7	●	
	2.6	Nature of ownership and legal form	6,7,24	●	
	2.7	Markets served	6,7	●	
	2.8	Scale of the reporting organization	6,7,71	●	
	2.9	Significant changes during the reporting period regarding size, structure, or ownership	6,7,24	●	
	2.10	Awards received	83	●	
Organizational Profile	3.1	Reporting period	About This Report	●	
	3.2	Date of most recent previous report	About This Report	●	
	3.3	Reporting cycle	About This Report	●	
	3.4	Contact point for questions regarding the report or its contents	About This Report	●	
	3.5	Process for defining report content	12,13	●	
Report profile	3.6	Boundary of the report	About This Report	●	
	3.7	State any specific limitations on the scope or boundary of the report	About This Report	●	
	3.8	Basis for reporting on entities that can significantly affect comparability from period and/or between organizations	About This Report	●	
	3.9	Date measurement techniques and the bases of calculations	About This Report	●	
	3.10	Explanation of the effect of any re-statements of information provided in earlier reports	About This Report	●	
	3.11	Significant changes from previous reporting periods in the scope, boundary, or measurement methods applied in the report	About This Report	●	
GRI Content Index	3.12	GRI Content Index	79-82	●	
Assurance	3.13	Policy and current practice with regard to seeking external assurance for the report	77,78	●	
Governance	4.1	Governance structure of the organization	24	●	
	4.2	Indicate whether the Chair of the highest governance body is also an executive officer	24	●	
	4.3	The number and gender of members of the highest governance body	24	●	
	4.4	Mechanism for shareholders and employees to provide recommendations or direction to the highest governance body	67	●	
	4.5	Linkage between compensation for members of the highest governance body, senior managers, and executives	24	●	
	4.6	Processes in place for the highest governance body to ensure conflicts of interest are avoided	24	●	
	4.7	Process for determining the composition, qualifications, and expertise of the members of the highest governance body	24	●	
	4.8	Statements of mission or values, codes of conduct, and principles	9	●	
	4.9	Procedures of the highest governance body for overseeing the organization's identification and management of economic, environmental, and social performance	24	●	
	4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental and social performance	24	●	
Commitments to external initiatives	4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization	25	●	
	4.12	Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses	83	●	
	4.13	Memberships in associations and/or national/international advocacy organizations	83	●	
Stakeholder engagement	4.14	List of stakeholder groups engaged by the organization	10,11	●	
	4.15	Basis for identification and selection of stakeholders with whom to engage	10,11	●	
	4.16	Approaches to stakeholder engagement	10,11	●	
	4.17	Key topics and concerns that have been raised through stakeholder engagement and how the organization has responded to those key topics and concerns	10,11	●	

● Fully reported ● Partially reported ○ Not reported

Economic					
Indicator					
	Number	Content	Page	Reporting rate (%)	Remarks
Economic	EC1	Direct economic value generated and distributed	27	●	Economic performance distributed
	EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	30-41	●	Countermeasures for climate change
	EC3	Coverage of the organization's defined benefit plan obligations	66	●	Operation of retirement pension plan
	EC4	Significant financial assistance received from government	-	●	Not significant for the operation or not applicable (N/A)
Market presence	EC5	Range of ratios of standard entry level wage compared to local minimum wage at significant locations of operation	66	●	308%
	EC6	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation	53	●	Policy on selecting partner companies
	EC7	Procedures for local hiring and proportion of senior management hired from the local community at locations of significant operation	75	●	Local people hired : 118
Indirect economic impacts	EC8	Development and impact of infrastructure investments and services provided primarily for public benefit (including type of provision)	32,34,70-73	●	Conducting national projects (infrastructure construction) and local community activities
	EC9	Understanding and describing significant indirect economic impacts (including the extent of impacts)	32-35,54-56	●	Creation of social and environmental values
Environmental					
Materials	EN1	Materials used by weight or volume	42,76	●	Materials used
	EN2	Percentage of materials used that are recycled input materials	42,76	●	
Energy	EN3	Direct energy consumption by primary energy source	42,76	●	Direct energy consumption
	EN4	Indirect energy consumption by primary energy source	42,76	●	Indirect energy consumption
	CRE1	Building energy intensity	76	●	
	EN5	Energy saved due to conservation and efficiency improvements.	35	●	Energy reduction through environmental friendly technology
	EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives	33-35	●	Environmental friendly materials use, environmental friendly buildings
	EN7	Initiatives to reduce indirect energy consumption and reductions achieved	-	○	
	Water	EN8	Total water withdrawal by source	42,76	●
EN9		Water sources significantly affected by withdrawal of water	-	●	No water sources are significantly affected
EN10		Percentage and total volume of water recycled and reused	-	○	
CRE2		Water use intensity in buildings	76	●	
Biodiversity	EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	38,39	●	All the sites of Lotte E&C
	EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	38,39	●	Concerns over destruction of ecosystem by executing projects
	EN13	Habitats protected or restored	39	●	Alternative habitat for Parnassius bremeri (Bremer)
	EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.	38,39	●	Monthly monitoring, establishing measures to minimize impacts on habitats, installation of detritus tanks and silt protectors
	EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk	38,39	●	
Emissions, effluents, and waste	EN16	Total direct and indirect greenhouse gas emissions by weight	43,76	●	Total direct and indirect greenhouse gas emissions
	EN17	Other relevant indirect greenhouse gas emissions by weight	43,76	●	Other relevant indirect greenhouse gas emissions
	CRE3	Greenhouse gas emissions intensity from buildings	76	●	
	CRE4	Greenhouse gas emissions intensity from new construction and redevelopment activity	76	●	
	EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved	33,36,37	●	
	EN19	Emissions of ozone-depleting substances by weight	-	●	Not applicable
	EN20	NO, SO, and other significant air emissions by type and weight	39	●	Scattering dust control
	EN21	Total water discharge by quality and destination		○	
	EN22	Total weight of waste by type and disposal method	43,76	●	Waste discharge
	CRE5	Land and other assets remediated and in need of remediation for the existing or intended land use according to applicable legal designations	-	●	No plant for remediating land according to legal designations
	EN23	Total number and volume of significant spills	-	●	No spills occurred
	EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally	-	●	No hazardous waste was shipped internationally
	EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff	39	●	Water quality management through the activated biological sludge method, separation membrane technology, and dissolved ozone flotation

Indicator					
	Number	Content	Page	Coverage(%)	Remarks
Products and services	EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation	33-36	●	Environmental-friendly construction materials and buildings, waste water reuse
	EN27	Percentage of products sold and their packaging materials that are reclaimed	-	●	Not significant for the operation or not applicable (N/A)
Compliance	EN28	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations	-	●	No fines or sanctions were imposed
Transportation	EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce	-	○	
Overall	EN30	Total environmental protection expenditures and investments	32,37	●	Environmental R&D expenses, green purchasing expenses
Labor Practices and Decent Work					
Indicator					
	Number	Content	Page	Reporting rate (%)	Remarks
Employment	LA1	Total workforce by employment type, employment contract, and region, broken down by gender	75	●	Current status of employees
	LA2	Total number and rate of new employee hires and employee turnover by age group, gender, and region	75	●	Number of employees resigned and moved
	LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	66,68-69	●	Benefit package, employee promoting and supporting programs, family-friendly programs
Labor-management relations	LA4	Percentage of employees covered by collective bargaining agreements	67	●	Holding labor-management councils
	LA5	Minimum notice period(s) regarding operational changes, including whether it is specified in collective agreements	-	●	Immediately notifying employees when operational changes occur
	LA6	Percentage of total workforce represented in formal joint management-worker health and safety committees	67	●	Labor-management councils discuss about promoting employees' health
	LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region	46	●	Rates of accidents : 0.11%
Occupational health and safety	CRE6	Percentage of the organization operation in verified compliance with an internationally recognized health and safety management system		●	Acquired KOSHA18001 and OHSAS18001
	LA8	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases	44-47	●	Conducting fire accident prevention activities, on-site safety inspection education, and safety education exchange activities
	LA9	Health and safety topics covered in formal agreements with trade unions	67	●	Added companies for health checkup (previously 12 companies □ changed to 13 companies)
Training and education	LA10	Average hours of training per year per employee by gender, and by employee category	65	●	Talent fostering activities /86.2 hours per employee (in 2012)
	LA11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	64,65	●	Employee benefit packages / education programs for retirees and employees
	LA12	Percentage of employees receiving regular performance and career development reviews, by gender	-	●	Percentage of employees subject to performance reviews : 97.5% (2012)
Diversity and equal opportunity	LA13	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	75	●	Board of directors, executives, and employees
	LA14	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation	-	●	No gender discrimination in salary structures
	LA15	Return to work and retention rates after parental leave by gender	75	●	
Society					
Local community	SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	25,38	●	Risk management activities before/ after executing projects, voluntarily conducting environmental risk inspection
	SO2	Percentage and total number of business units analyzed for risks related to corruption	60	●	Operating ethical code practice programs and education programs on ethical management
Corruption	SO3	Percentage of employees trained in organization's anti-corruption policies and procedures	60	●	Departments and sites participated in ethical management education programs
	SO4	Actions taken in response to incidents of corruption	-	●	Disciplinary actions taken for those violated ethical management practices (dismissal : 1, cut in salary and official reprimands : 11)
Public policy	SO5	Public policy positions and participation in public policy development and lobbying	32,35	●	Performed national projects with the government
	SO6	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country	-	●	Not applicable
Anti-competitive behavior	SO7	Total number of legal actions for anticompetitive behavior, anti-trust, and monopoly practices and their outcomes	-	●	No violations during the reporting period
	SO8	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with laws and regulations	-	●	No violations during the reporting period
Compliance	SO9	Environmental friendly construction management and activities	38,39	●	
	CRE7	Number of persons voluntarily and involuntarily displaced and/or resettled by development, broken down by project	-	○	
	SO10	Prevention and mitigation measures implemented in operations with significant potential or actual negative impacts on local communities	38,39	●	

Human Rights					
Indicator					
Number	Content	Page	Reporting rate (%)	Remarks	
Investment and procurement practices	HR1	Percentage and total number of significant investment agreements and contracts that include clauses incorporating human rights concerns, or that have undergone human rights screening	-	○	No significant investment agreements are being undergone human rights screening but articles related to human rights will be included in agreements in near future
	HR2	Percentage of significant suppliers, contractors and other business partners that have undergone human rights screening, and actions taken	-	○	There are no direct indicators related to human rights that evaluate partner companies but their bidding is blocked when their violations of human rights (ethical management) are found
	HR3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	60	●	Conducting 'Positive energy, pursue ethical management' for all employees
Non-discrimination	HR4	Total number of incidents of discrimination and corrective actions taken	-	●	No incidents of discrimination occurred
Freedom of association and collective bargaining	HR5	Operations and significant suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and actions taken to support these rights	67	●	Holding labor-management councils and operating various communication channels
Child labor	HR6	Operations and significant suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor	-	●	Compliance with the Labor Standards Act
Forced and compulsory labor	HR7	Operations and significant suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor	-	●	Compliance with the Labor Standards Act
Security practices	HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations	-	●	Not significant for the operation
	HR9	Total number of incidents of violations involving rights of indigenous people and actions taken	-	●	No violations occurred
	HR10	Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments	25	○	Considering non-financial risk management and social risks
Indigenous rights	HR11	Number of grievances related to human rights filed, addressed and resolved through formal grievance	70-73	●	No complaints received
Product Responsibility					
Customer health and safety	PR1	Life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures	38-41	○	Environmental impact reduction activities in the whole process of the operation
	PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle, by type of outcomes	-	●	No violation occurred
	PR3	Type of product and service information required by procedures and percentage of significant products and services subject to such information requirements	-	●	No violation occurred
Product and service labeling	CRE8	Type and number of sustainability certification, rating and labeling schemes for new construction, management, occupation and redevelopment	40	●	Environmental friendly building certificates
	PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes	-	●	No violation occurred
	PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction	47-49	●	Reinforcement of customer relationship management, building customer privacy protection system, and improvement of construction quality through pre-management
Marketing communications	PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship		●	Conduct code and attitude towards customers
	PR7	Total number of incidents of noncompliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship by type of outcomes	-	●	No incidents of noncompliance
Customer privacy	PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.	51	●	Conducted customer privacy protection activities, no complaints received
Compliance	PR9	Monetary value of significant fines for noncompliance with laws and regulations concerning the provision and use of products and Compliance services	-	●	No noncompliance

Associations, Memberships, and Awards

Associations and Memberships

Association			
The Federation of Korean Industries	Korea Economic Research Institute	Korea Chamber of Commerce & industry	Korean-Russian Far East Association
Korea-Mongolia Cooperation Association	Construction Industry Accident Manager Association	Construction Association of Korea	Korea Electrical Contractors Association
Korea Information Communication Contractors Association	Korea Fire Safety Association	Construction Guarantee Cooperative	Electric Contractor's Financial Cooperative
Information & Communication Financial Cooperative	Korea Road & Transportation Association	Korean National Committee on Irrigation and Drainage)	Korea Underground Space Association
Northeast Asia Infrastructure Association	International Society for Rock Mechanics (ISRM)	Korea Railway Construction Engineering Association	The Korea Railway Association
The Korean Society of Agricultural Engineers	Korea New Transit Association	International Tunneling Association (ITA)	International Contractors Association of Korea
IBS KOREA	The Korean Institute of Electrical Engineers	Society of Air-Conditioning and Refrigerating Engineers of Korea	Korean Association of Air Conditioning Refrigerating and Sanitary Engineers
Korea Industrial Technology Association	Korea Engineering & Consulting Association	Construction and Economy Research Institute of Korea	Computational Structural Engineering Institute of Korea
Korean Society of Civil Engineers	Korea Institute of Construction Technology	Korean Geotechnical Society	Korea Concrete Institute
American Concrete Institute (ACI)	Korean Tunneling and Underground Space Association	Korea Research Council for Construction Industry	Korea Infrastructure Safety Inspection Association
The Korean Society for Noise and Vibration Engineering	Korea Society of Coastal and Ocean Engineers	The Korea Construction New-Technology Association	Korean Society of Soil and Groundwater Environment
The Wind Engineering Institute of Korea	Korea Housing Association	Korea Housing Association	Korea Federation of Construction Contractors
Construction Safety Manager Committee	Architectural Institute of Korea	The Korea Institute of Building Construction	Korean Institute of Illuminating and Electrical Installation Engineers
Construction Quality Management and Research of Korea			

Awards

Year	Award	Date	Organization
2012	Received the Best Company Chosen by Women Award for seven consecutive years	05.18	Korean Standards Association (KSA)
	Received Grand prize from Korea Service Awards (Apartment category)	06.27	Korean Standards Association (KSA)
	Received Best Prize from 2012 Eco-Friendly Construction Awards (landscaping category)	07.24	Joongang Daily
	Received Best Prize from 2012 Eco-Friendly Construction Awards (landscaping category)	07.24	Joongang Daily
	Received a commendation on accompanied growth of big and small enterprises and fair subcontract order	07.24	Fair Trade Commission
	Received a minister's citation celebrating the 18th National Statistics Day	08.31	Minister of Strategy and Finance
	Received Excellent Award from 2012 Korean Architecture Awards	10.23	Korea Institute of Registered Architects, Seoul Economic Daily
	Received the Presidential Award from the 38th National Quality Management Convention	11.23	Korean Standards Association (KSA)



This report is printed on environmental friendly paper with soy bean based ink.

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