BUILD TOGETHER
INCREASING PROGRESS

Daewoo E&C has established a history of trust built on superior technology and passion. We have increased the value of land through the creative utilization of harsh environments around the world, and have made history in the areas of engineering and construction by embracing changes in energy, industrial topographies and lifestyles. We will continue to transform the world for the future.
Daewoo E&C began to build roads and bridges in 1978, and has built many major national infrastructures since then. We have contributed to the balanced development of land through the construction of roads and railways - connecting life, economies and cultures between regions - while paving the way for global trade by opening sea routes through new harbor facilities. Our advanced civil engineering and building capabilities are making a considerable mark in the history of construction at home and abroad. Such experiences and expertise are now providing the foundations for luxury lifestyles and industries all over the world. Our business territories are now expanding into Asia, the Middle East, South America and Africa.
Geoga Bridge is a large-scale civil works project, connecting an 8.2km-long section of the city of Geoje to Busan, by using an undersea immersed tunnel. As the world’s longest of its kind, the 3.7km-long undersea immersed tunnel was built 48m underground, the deepest of the world’s undersea tunnels. It broke five new world records: the world’s longest structure (180m); the world’s first open sea construction; the world’s deepest water construction; the softest ground construction; and the world’s first double joint structure connection. This project, recognized as the greatest achievement in South Korea’s construction history, has armed us with the technology and data necessary to undertake similarly complex tunnel construction projects overseas.
Highways
As the main arteries connecting major cities and facilities, highways are strong contributors to economic development. Daewoo E&C changes and enriches lives by leading the construction of large-scale highways in South Korea.

Daewoo E&C has participated in the construction of major highways in South Korea since 1978, beginning with the Busan-Masan Highway, Section 3, which was also notable for its reduction of logistics expenses. In addition to national projects, we have built the Cheonan-Nonsan, Daegu-Busan, Yongin-Seoul Highways as well as other privately-financed roads, contributing to the invigoration of regional economies and the balanced development of land. We are also world leaders in the use of tunnel construction to maximize the efficiency of land. The Inje Tunnel of the Dangjongsan-Yangyang Highway is the longest such facility in South Korea and provides the fastest connection between the Metropolitan Area with the east coast. It was completed in 2017, and won the “Civil Structure of the Year” award in recognition for its minimal environmental impact. We have also carried out grand-scale overseas projects such as the world’s largest-ever highway project undertaken by a single company in Pakistan, making us a global powerhouse in the highway sector.
In 1984, Daewoo E&C completed the construction of Dongjak Bridge, the nation’s first such structure designed to carry both road and subway traffic. We also built the Gwangan Bridge in Busan, the nation’s largest double-layered bridge over water, spanning 7.4km. The 8.2km-long Geoga Bridge, which connects Geoje and Busan, drew international acclaim as being the world’s longest structure also built at the world’s deepest underwater depth. Overseas we have built marine bridges in Bihar and Mumbai, India, and a hybrid bridge linking Botswana and Zambia in Africa.
Daewoo E&C is actively involved in major railway network and subway construction projects. We maximize the convenience of life and the efficiency of industries by drawing on our extensive experience and leading-edge design and construction capabilities.

### Railways & Subways

Daewoo E&C boasts industry-leading technology and construction experience in the high-speed railway area. With a track record of having undertaken the largest number of sections of high-speed railway projects in South Korea, we have contributed greatly to South Korea being fifth in the world in total number of HSRs, by combining advanced mechanized construction technology with safe construction technology. We are also recognized for our leadership in subway construction. We have participated in the construction of almost all subway lines in Seoul and other major centers. We have demonstrated our technological prowess by employing the nation’s largest diameter shield tunneling method to construct the extension of Bundang Line, and through the the wide area express railway in the metropolitan area (STX-A) project, featuring a 50m underground road linking Paju, Seoul, and Dongtan. We are also actively exploring overseas markets including the Singapore Mass Rapid Transit.

- **Honam HSR, Phase 1**
  - (Sections 1-1 and 1-4), Korea
  - Total length: 182km (Osong Station, Chungcheongbuk-do - Songjeong Station, Gwangju)
  - Included bridges and tunnels

- **Bundang Subway Line, Section 3, Korea**
  - Total length: 3.6km
  - (Wangsimni Station, Seoul - Mangpo Station, Suwon)
  - Included undersea tunnels, stations

- **Yeongdong Line Railway**
  - (Dongbaeksan - Dogye), Korea
  - Total length: 17.7km
  - Included the nation’s longest loop-type tunnel for Taebaek-Samcheok line in Gangwon-do

- **Sosa-Wonsi Double-Track Railway, Korea**
  - Total length: 28.3km
  - (Sosa-dong, Bucheon - Wonsi-dong, Ansan in Gyeonggi-do)
  - Included 12 stations

- **Gyeongbu HSR, Sections 10-2, 13-3, and 14-2, Korea**
  - Total length: 5.5km for 10-2 (including tunnel), 8.8km for 13-3 (including tunnel and culverts), and 9.9km for 14-2 (including tunnel, shaft, shelter)

- **Gyeongbu HSR, Sections 8-1 and 8-2, Korea**
  - Total length: 11km for 8-1, 16.9km for 8-2
  - Included tunnels, bridges

- **Singapore MRT, Section 216, Singapore**
  - Total length: 3.2km (1 station)

- **Seoul Subway Line No. 9, Sections 901, 903, 905, 911, and 914, Korea**
  - Total length: 25.5km (Gimpo International Airport - Sinnonhyeon Station)
  - Included 7 stations
Harbors & Reclamation

Infrastructure that enables the efficient use of harbor facilities and other water resources plays an integral role in invigorating national economies and energy efficiency through exports. Daewoo E&C has garnered international recognition for its technology in this area, with a solid track record in developing harbors, shipyards and dams at home and abroad.

Daewoo E&C has become a leader in South Korea in the construction of harbor facilities - including revetments, breakwaters and seawalls. By building the Busan Port - the nation’s largest container port - we supported the emergence of Busan as a globally competitive logistics base. Overseas, we have completed the repair of many shipyards, including in Oman and Qatar. We have also introduced top of the line harbor construction technology, exemplified by our container terminal in Algeria and our global-scale breakwater project in Iraq. We also take pride in our differentiated technology expertise. A prime example is South Korea’s Sihwa Lake Tidal Power Plant, the largest such facility in the world, which is now producing electricity that can be used year-long by 500,000 people.
Environment
The environmental industry requires proactive action and investment to allow for the sustainable development of our global human society. Daewoo E&C invests in innovative technology development that is leading the way in future energy generation and supply.

Daewoo E&C has consistency proven itself to be South Korea’s top performer in the innovative construction of water treatment facilities, including sewage treatment, water purification plants and sewage pipelines. By developing new technologies such as eco-friendly designs and Daewoo Nutrient Removal (DNR) sewage treatment, we have taken the ground-breaking approach of moving all treatment facilities underground, creating parks above the ground and improving public amenities. We are also becoming a recognized leader in the green energy business. For example, we have secured New Excellent Technologies, patents and the ability to carry out projects in the field of biogas power generation. We have also successfully completed the Jeju solar power generation project through ongoing investments in solar power, wind power and other forward-looking businesses.

Dubai Sewage Treatment Plant, UAE
Included a 91km-long pipeline and a pumping station
Capacity: 130,000 tons/day

El Harrach River Restoration, Algeria
It is the world’s first overseas project undertaken by a South Korean construction company. Included pipeline construction, park, pumping station Total length: 88km

Hambu Water Resources Ecology Park (Yeokgok Sewage Treatment Plant), Bucheon, Korea
Included sewage treatment facility, recreation/amusement park
Capacity: 50,000 tons/day

Guizhou Water Purification Plant, Seoul, Korea
Capacity: 250,000 tons/day for standard water purification and 450,000 tons/day for advanced water purification

Dubai Water Resources Ecology Park (Dolphin Sewage Treatment Plant), Bucheon, Korea
Included sewage treatment facility and a recreation/amusement park
Capacity: 350,000 tons/day

Jeju Solar Power Plant, Jeju, Korea
Included 87 solar power facilities
Installed Capacity: 47.5 MW

Ulsan Thermal Power Plant Desulfurization Facility, Units 4 to 6, Ulsan, Korea
Waste water treatment capacity: 270 tons/day

Constantine River Restoration, Algeria
Included 4.5km river maintenance, 8.35km trail on the terrace land

Daegu DBS (Daewoo Biogas System), Daegu, Korea
The first biogas plant ever built in South Korea
Treatment capacity: 300 tons/day
Leisure

The creation of modern leisure facilities requires a proactive anticipation of and response to the ever-changing consumer trends and desires. Daewoo E&C is committed to meeting this challenge by constructing a wide range of leisure facilities that allow for enjoyment and play amidst our hectic modern lifestyles.

Daewoo E&C entered the leisure facility sector by completing the construction of Suyeongman Bay Yachting Center in 1986. Today, our highly regarded construction approaches seamlessly integrate nature into our designs. The golf courses we have constructed have solidified our reputation as forerunners in the leisure culture sector. We have greatly increased the quality of construction of golf courses in South Korea, which include the Yeongcheon Country Club - whose development was designed and supervised by Vijay Singh - and the Adonis CC in Pocheon, Gangwon Land, which is located 1,150 meters above sea level. Overseas, we built the LaoLao Bay Golf & Resort in Saipan.
The construction of industrial plants is a knowledge-based, high-value-added sector that combines technologies in repair and maintenance, from the procurement of machinery and equipment to engineering competence, construction, supervision, and trial operations. Daewoo E&C has been leading the construction of thermal power, cogeneration, tidal power, and nuclear power plants, LNG storage, and other facilities with our outstanding technology and passion. In overseas markets, we are competing with global players by building high-value-added plants. Our success has led to our being recognized as one of the "Global Top 20" through our ongoing commitment to technology development and investment in the new and renewable energy sector.
Daewoo E&C has secured an unrivalled profile with a 10% global market share in the area of LNG liquefaction plant construction that requires the integration of highly advanced technologies. In addition to constructing about 50% of LNG storage tanks in South Korea, we have been recognized globally for our superior construction capability in Nigeria, Algeria, Russia, Papua New Guinea and beyond, with competency to carry out the engineering, procurement, and construction (EPC) of LNG regasification plants. The Papua New Guinea LNG production facility is one of our largest-scale projects, producing 6.3 million tons of LNG per year. It was the first such project to be developed in a South Pacific country by a South Korean construction company.

Annual Production Capacity of Papua New Guinea LNG Liquefaction Plant

6.3 million tons per annum

Sustaining growth built on advanced technology and trust

LEADING TECHNOLOGIES
LNG, Oil & Gas

Daewoo E&C possesses unparalleled technologies in the fields of oil and gas, as well as pipelines and storage facilities. Particularly in the LNG plant sector, our domestic share in storage facilities and world market share in liquefaction trains amount to 50% and 10% respectively.

LNG plants have been in the spotlight for its sustainable growth in business following a rise in LNG demand due to worldwide GHG emission reduction efforts and increased shale gas production. Daewoo E&C has constructed approximately 50% of LNG regasification plants and storage tanks in South Korea. These include Tongyeong, Incheon and Pyeongtaek LNG receiving terminals. Building on our strong foundation of experience and technology, we have also successfully carried out the construction of LNG liquefaction trains and storage tanks in Nigeria, Algeria, Russia, Papua New Guinea and other overseas markets.
Daewoo E&C maximizes the value of the refinery and petrochemical industry by applying our comprehensive construction capabilities across all facilities.

Daewoo E&C has amassed a wealth of experience and technology in developing petrochemical production plants and refineries. Our technology and expertise have been enhanced by building a large number of plants including S-OIL’s crude oil unloading facilities and a styrene-butadiene rubber (SBR) plant in Ulsan. A particularly notable milestone was building S-OIL’s Residue Upgrading Complex (RUC) and Mixed Feed Cracker (MFC), which allowed the company to maximize its business value. We have also won the trust of refiners and petrochemical companies around the globe by completing the construction of a Nigerian fertilizer plant that maximizes the added value of natural gas and a Moroccan phosphate fertilizer plant which utilizes phosphate ore, in addition to the world’s largest fertilizer plant in Algeria.
Power Plants

Daewoo E&C has accumulated technology and experience in various power plant sectors including thermal power, tidal power, hydropower, and cogeneration since the successful completion of the Ulsan Thermal Power Plant in 1977. Now, we are extending our interests into the new and renewable energy sector by applying our expertise to carry out large-scale EPC projects at home and abroad.

**Sur Power Plant, Oman**
- A combined-cycle power plant (CCPP) with 5 gas turbines, 5 exhaust gas waste heat recovery boilers, 3 steam turbines.
- Daewoo E&C’s largest capacity CCPP EPC project.
- Capacity: 2,000MW

**Afan VI Power Plant, Nigeria**
- A CCPP with 3 gas turbines, 3 exhaust gas waste heat recovery boilers, 1 steam turbine.
- Capacity: 650MW

**Jorf Lasfar Power Plant, Units 5 and 6, Morocco**
- A coal power plant.
- Capacity: 700MW (two 350MW units).

**Safi Power Plant, Morocco**
- Daewoo E&C’s first USC coal power plant EPC project.
- Capacity: 1,386MW (two 693MW units).

**RDPP Plant, Algeria**
- A combined-cycle power plant with 3 gas turbines, 3 exhaust gas waste heat recovery boilers, 3 steam turbines.
- Daewoo E&C’s first single shaft-type CCPP EPC project.
- Capacity: 650MW

**Pocheon Natural Gas Power Plant, Unit 1, Pocheon, Korea**
- A CCPP with 2 gas turbines, 2 exhaust gas waste heat recovery boilers, 1 steam turbine.
- Capacity: 904MW

**Shuweihat 3 Power Plant, UAE**
- A CCPP with 4 gas turbines, 4 exhaust gas waste heat recovery boilers, 2 steam turbines.
- Daewoo E&C’s first multi-shaft-type CCPP EPC project in UAE.
- Capacity: 1,600MW

**Benghazi Power Plant, Libya**
- A CCPP with 750MW capacity (2 gas turbines, 2 exhaust gas waste heat recovery boilers, 1 steam turbine).
- Capacity: 750MW

Daewoo E&C has been the top player in the construction of large power plants in South Korea. These include the Ulsan Thermal Power Plant, Paju Cogeneration Power Plant, Samcheok Green Power Plant and Pocheon Natural Gas Power Plant. Building on this expertise, we have entered Nigeria, Libya, Algeria, Morocco and other overseas markets, gaining recognition for our technological prowess the world over. In 2011, we began to develop clean ocean energy in earnest through the construction of Sihwa Lake Tidal Power Plant, the largest build of its kind in the world, with a facility capacity of 254MW and a power generational capacity of 254,000kW a day. We will continue to expand our business interests into the new and renewable energy sector including tidal power, biogas, wind power and solar power, following the global trend toward eco-friendly energy.
Nuclear Power

Nuclear power is known to be the most economical and efficient energy source. Daewoo E&C is gaining global recognition in this area based on its knowledge and track record in developing many different nuclear power-related projects.

Daewoo E&C has proven to be at the top of the industry in terms of nuclear power plant (NPP) construction capabilities since the Wolsong NPP Units 3 & 4 that recorded the shortest construction period in the world. We successfully built the Shin-Wolsong NPP, Units 1 & 2 by applying immersed structure and other advanced construction methods, as well as the Jordan Research and Training Reactor which marked the first NPP EPC export in South Korea.

Our business portfolio has also diversified. We are the first certified company in South Korea’s construction industry to offer NPP operation and design services (Q Grade). We have also provided technical assistance to NPP projects in China and Taiwan. Other projects we have carried out include low and intermediate level radioactive waste disposal facilities and water tritium removal facilities.
Daewoo E&C has been a leader in the architectural sector in various fields, from office buildings to hotels, exhibitions, and medical and sports centers. The safe and comfortable spaces and efficient and beautiful buildings we have created have become landmarks and a source of pride for people in many parts of the world. Daewoo E&C is a global pioneer in the engineering and construction of skyscrapers and intelligent buildings with our advanced R&D and innovative spirit. We will keep building on our innovative approach to architecture and city building by inventing even smarter and more eco-friendly technologies and construction methods.
Erected in the heart of Kuala Lumpur, Malaysia’s capital, the IB Tower is a high-rise intelligent building standing 274 meters high with four stories below the ground and fifty-eight above. It was built by Daewoo E&C using a variety of special construction methods such as the Building Movement Control (BMC), Skip-Flooring, and steel frame prefabrication and lifting methods. Featuring a unique external appearance and the integration of top-notch technologies, it has become a signature icon in the city. Through these and other projects, our world-class skyscraper construction technology and capability continue to define architectural culture and technology around the world.
Office Buildings

Daewoo E&C has established an unparalleled reputation in the domestic and overseas markets by building skyscrapers with high-tech features and office buildings that have quickly become iconic local landmarks. Through the convergence of ICT technologies, we will continue to build our reputation for offering some of the most advanced, sophisticated and intelligent office buildings in existence.

Daewoo E&C has emerged as a powerhouse in the office market by constructing the Yonsei University Foundation building, South Korea’s first intelligent building system (IBS) facility. Since then, we have solidified our high ranking in the field by building the head office of Korea Development Bank and Kyobo Tower, a landmark in the neighborhood of Gangnam Station. We also transformed the former Daewoo Center into Seoul Square, another IBS building featuring cutting-edge facilities.

We have also been actively engaged in the construction of skyscrapers overseas, building on our strong reputation and customer trust. This includes the KLCC Tower in Kuala Lumpur, Malaysia, which was built using our independently-developed Building Movement Control (BMC) technology, as well as the Telekom Malaysia headquarters building, now a notable local landmark.

1. KLCC Tower, Kuala Lumpur, Malaysia
   - 5 stories below the ground and 58 above
   - A high-rise intelligent building

2. Telekom Malaysia Headquarters Building, Kuala Lumpur, Malaysia
   - 3 stories below the ground and 37 above
   - A cutting-edge, high-rise intelligent building, erected using the pre-stressing beam method

3. Gyeongbuk Provincial Officials, Andong, Korea
   - 30% use of new and renewable energy
   - Obtained the highest-grade Green Building certification

4. Northeast Asia Trade Tower, Songdo, Korea
   - Total floor area: 104,425m²
   - 3 stories below the ground and 68 above
   - A landmark in Songdo International City, Incheon

5. Kyobo Tower, Seoul, Korea
   - Total floor area: 92,899m²
   - 8 stories below the ground and 25 above

6. Seoul Square, Seoul, Korea
   - Total floor area: 132,865m²
   - 2 stories below the ground and 23 above
   - Introduced the world’s largest LED media canvas on its facade

7. IB Tower, Kuala Lumpur, Malaysia
   - 4 stories below the ground and 58 above
   - A high-rise intelligent building

8. New KEPCO Office Building, Busan, Korea
   - Total floor area: 94,127m²
   - Won Grand Prize at 2015 Korea Green Building Award

9. G Tower, Songdo, Korea
   - Total floor area: 81,324m²
   - 2 stories below the ground and 53 above
   - Won Grand Prize in Architecture at 2015 Korea Green Construction Award in recognition of first grade energy efficiency and South Korea’s largest new and renewable energy utilizing structure
Commercial Complexes

Commercial complexes are evolving into multifunctional facilities that combine shopping, living convenience and cultural infrastructure. Daewoo E&C has built commercial complexes that satisfy the various needs of customers and visitors, contributing to the invigoration of local economy and improving local culture.

Daewoo E&C is building commercial complexes that provide added value for customers and extra convenience for visitors. Commercial complexes we have built include Migliore shopping malls (in Dongdaemun, Myeongdong, Sinchon, Busan, and Daegu), which have become local landmarks, and Sindorim Techno Mart, an electronics shopping center. We were also the first South Korean construction company to enter the Japanese construction market, where we completed Fukuoka Canal City, now a leading landmark in Fukuoka.
Daewoo E&C is renowned as a global developer of hotels and condominiums, a field that requires customer-centered quality management, user convenience-oriented designs and construction, and aesthetics that reflect modern sensibilities and trends.

Daewoo E&C has established an impressive portfolio in the construction of hotels and condominiums. This includes the Millennium Seoul Hilton, Gyeongju Hilton, Hotel Lotte, High1 Grand Hotel (Main Tower) and Seoul Dragon City, which boasts the largest number of guestrooms in South Korea. We were also able to minimize the environmental impact of the Sheraton Grand Incheon Hotel by employing eco-friendly materials throughout its construction phase and recycling more than 75% of waste generated during the construction period. The hotel acquired a Leadership in Energy and Environmental Design (LEED) certification from the US Green Building Council, a first for a South Korean five-star hotel. We are also expanding into the hotel markets in Malaysia, Singapore and other Southeast Asian countries, by building such high-end hotels and condominiums as the Hilton hotels in Algeria and Morocco, and Vietnam Hanoi Daewoo Hotel in Vietnam.
Educational, Medical & Research Facilities

Daewoo E&C is building educational facilities that will foster the development of future leaders, as well as state-of-the-art medical facilities that will allow medical professionals to provide the best care possible.

Daewoo E&C has contributed to the development of advanced medical services and research centers through the construction of hospitals at home and abroad. This includes the 1,300-bed Seoul National University Bundang Hospital, Busan National University Hospital/Children’s Hospital, Ajou University Hospital in South Korea, and Benghazi Central Hospital and Tripoli Central Hospital in Libya. We are also developing a strong reputation in the field of educational and research facilities. This includes the construction of buildings at Yonsei University, Ajou University, Sogang University, and Seoul National University. Of particular note was our application of innovative technologies to the construction of the Seoul National University Kwanjeong Library, including the mega truss construction method that allows the lifting and sliding of ultra-high-strength steel structures.
Exhibition & Sports Centers

Daewoo E&C creates exhibitions and sports centers that bring people together through sport, cultural experiences and special events. We create multi-purpose buildings for rest, relaxation, and health as well as national exhibition centers.

Daewoo E&C has built cultural exhibition centers that are both practical and beautiful. This includes the KINTEX International Exhibition Center (or KINTEX), a leading exhibition and convention center in South Korea; the National Museum of Contemporary Art in Gwacheon; the Busan Museum of Art; the National Museum of Korea; and the “Floating Island”, the world’s largest artificial island and waterside cultural complex. In the sport facility sector we have constructed Gwangmyeong Cycle Racing Domed Stadium (South Korea’s first domed velodrome), Busan Sports Complex, Incheon SK Happy Dream Stadium and Daegu Samsung Lions Park.
Convention & Transportation Infrastructures

Daewoo E&C is committed to creating the most cutting-edge international convention and transportation infrastructure available. By keeping ahead of the swift pace of technological and lifestyle changes, we have been able to revitalize the meeting, incentives, convention, events and exhibition (MICE) industry.

The Nurimaru APEC House, which hosts international summits, is a prime example of our proficiency in the area of convention infrastructures. Designed in the mode of a traditional Korean pavilion but using a modern architectural style, it won First Prize at the Korea Engineering and Construction Technology Awards. It was lauded for reflecting the spirit and culture of Korea while also serving as a hallmark international convention center. Other convention and transportation sector facilities we have constructed include the Incheon Airport Passenger Terminal and Concourse, the Incheon Port International Passenger Terminal, the Suwon Complex Terminal and the Cheongju Bus Terminal.

- **Nurimaru APEC House, Busan, Korea**
  - Total floor area: 2,994m²
  - 3 stories above the ground
  - A modern-style replica of a "Jeongja" or traditional Korean pavilion

- **Science Technology Creation Center, Daejeon, Korea**
  - Total floor area: 42,686m²
  - 14 stories above the ground
  - Included a large-scale convention center, a collaborative industry-academia-research facility

- **Incheon Airport, Incheon, Korea**
  - Total floor area: 47,428,000m²
  - Included 2 passenger terminals, 5 runways, 385 passenger airplane aprons, 107 cargo airplane aprons

- **ASEM Tower, Seoul, Korea**
  - Total floor area: 147,061m²
  - 4 stories below ground and 41 above
  - A cutting-edge international convention center and the site of the Third Asia-Europe Meeting in 2000

- **International Convention Center (ICC), Jeju, Korea**
  - Total floor area: 62,125m²
  - 2 stories below ground and 5 above
  - Included international convention, other event facilities

- **Gwangju Design Center, Gwangju, Korea**
  - Total floor area: 17,085m²
  - 1 story below ground and 7 above
  - Eco-friendly building with minimized energy consumption and environmental pollution

- **Incheon Port International Passenger Terminal, Incheon, Korea**
  - Total floor area: 23,233m²
  - 4 terminal buildings and 14 for parking
In 1995, Daewoo E&C became the first company in South Korea to introduce the concept of eco-friendliness to apartment complexes. The concept involved building a sense of brand trust by presenting potential buyers with the company’s vision for PRUGIO and PRUGIO SUMMIT homes as places where people could lead happy, fulfilling, and meaningful lives. We are also contributing to the health and happiness of our customers’ lives through the development of innovative urban residential complexes, studio apartments, and redevelopment, reconstruction and remodeling projects. By acting as front runners of the smart home sector, we are modeling a new residential culture that seamlessly blends people, the environment and technology into customers’ homes.

- Apartments
- Urban Residential & Commercial Complexes
- Studio Apartments & Urban Lifestyle Homes
- Townhouses & Villas
- Redevelopment, Reconstruction & Remodeling

Worldmark West End, Daegu
Since 2010, Daewoo E&C has ranked first in South Korea’s housing supply. In 2017, we were awarded the grand prize in the Most Livable Apartment Contest for our Secho PRUGIO SUMMIT. Our PRUGIO eco-friendly premium residential brand remains a customer favorite, combining an emphasis on people’s lifestyle needs with environmental considerations and all the benefits of the most futuristic technology. To maintain our place as a comprehensive real estate company, we will continue to hone our competitive edge in the fields of urban residential and commercial complexes, studio apartments, and redevelopment, reconstruction and remodeling - while continuing to reinforce our leasing, management, distribution and other operational capabilities.
Apartments

Apartment buildings are the most efficient and convenient type of living space available; they enhance the value of land while contributing greatly to housing security. Daewoo E&C has been leading lifestyle trends in this area by presenting the most advanced residential culture for apartment buildings since entering the field in 1984.

In 1994, Daewoo E&C raised the standard of South Korea’s residential culture to the next level through the introduction of eco-friendly considerations into apartment buildings. In 2003, we made another indelible mark in this field through the launch of our PRUGIO eco-friendly apartment complex brand, which showcases our philosophy of combining premium residential lifestyles with livable cultural spaces and the environment. PRUGIO has proven its brand power by ranking first in supply performance for the eleven years since its launch as well as in the Korea Standard-Premium Brand Index (KS-PBI) survey. It was also the first apartment complex brand to be named “Good Design.” We also launched our PRUGIO SUMMIT high-end residential product brand in 2014, creating quality luxury living spaces.
Daewoo E&C is responding to an emerging residential culture that reflects modern changes in demographics and lifestyle. Following a rise in the number of one-person and small-sized households, we are proactively developing "tiny home" residential products that feature practical designs while utilizing minimal space.

Daewoo E&C has supplied a number of studio apartment brands since the early 2000s, such as I-VILLE and THE O-VILLE series. These products meet the needs of small household customers, while capitalizing on the advanced technologies we have developed through the construction of apartments and high-rise intelligent buildings. In 2008, we introduced the PRURIO CITY small residential product that combines studio apartments with urban lifestyle homes, leading the markets for both studio apartments and urban lifestyle homes. We will continue to develop our industry-leading reputation in the small-sized housing market backed by our insightful analysis of changing lifestyles, planning power, thoughtful product mix, and superior brand power.
Urban Residential & Commercial Complexes

At Daewoo E&C, we believe that living spaces should offer quality as well as convenience. To deliver on this, we are introducing sophisticated residential and commercial complexes for customers who desire multi-purpose residences.

People’s tastes for housing are becoming increasingly diversified and sophisticated. To meet these trends, Daewoo E&C provides special high-end residential complexes such as the DAEWOO TRUMP WORLD in Yeouido, the Yongsan CITY PARK Apartments and the DAEWOO TRUMP WORLD Centum in Busan. Their designs have instilled great pride as local landmarks. The DAEWOO TRUMP WORLD in Yeouido and the DAEWOO TRUMP WORLD Centum in Busan are considered exceptional examples of high-end commercial-residential buildings, incorporating leading edge technology and expertise gained through our partnership with the Trump World Tower business in Manhattan, New York. The Yongsan PRUGIO SUMMIT has also emerged as the highest-end commercial-residential facility in its area, delivering an unparalleled luxury lifestyle.
Town Houses & Villas

Daewoo E&C is exploring new business territories emerging within the rapidly changing residential sector. We are creating new-concept living spaces through the construction of townhouses and forward-looking homes that reflect people’s increasingly diverse lifestyle preferences.

Daewoo E&C is dedicated to creating innovative living spaces that meet the needs of consumers while leading market trends. Following a rise in demand for townhouses that offer the benefits of natural settings and urban centers while also delivering the convenience of apartments, we are constantly evolving our high-class homes that integrate comfort while meeting these superior lifestyle needs. With this goal in mind, we have taken our high-end villas to the next level with our GREEN COUNTY and ROYAL COUNTY brands. We are further realizing our philosophy of creating premium residential spaces that allow people and nature to coexist through our PRUGIO HEIM townhouse brand.
Redevelopment, Reconstruction & Remodeling

Daewoo E&C is a proactive player in redevelopment, reconstruction, and remodeling projects that seek to provide more comfortable and pleasant living conditions through the improvement of residential environments and the expansion of urban infrastructure. We are adding value to urban housing through our commitment to enriching our customers’ lives.

Daewoo E&C’s leadership in South Korea’s redevelopment, reconstruction, and remodeling sector capitalizes on our ongoing product development and advanced technologies. The PRUGIO SUMMIT we developed in 2014 is becoming a landmark in such major areas as Seocho, Banpo, and Yongsan in Seoul. Notably, the Secoho PRUGIO SUMMIT received the Presidential Award in the 2017 Most Livable Apartments Contest, in recognition for its technology and quality. We will continue to take the lead in creating beautiful and livable urban spaces by participating in a wide spectrum of urban redevelopment projects.
Daewoo E&C is implementing its strategic goal to be a “Global Top 20” with our accumulated expertise in engineering and construction, operations and management, as well as our reliable financing capabilities. Through well-structured business planning and detailed risk analysis and mitigation, we will engage in domestic and overseas energy, infrastructure, and urban development projects which are becoming larger and more complex. By doing so, we will continue to diversify our revenue sources and keep the level of South Korea’s construction services high in the world.
Daewoo E&C has been opening new opportunities in the global marketplace through developing urban projects. Star Lake City under construction in Vietnam is Korea’s first private-led overseas urban development project. Star Lake City, around 186 ha of area, represents a new era in urban development projects in that Daewoo E&C has solely carried out project from planning and financing to construction and sales. Once completed, it is expected to quickly become the newest political, industrial, diplomatic and residential center in the region. We will continue to expand our business area into the emerging countries’ urban development markets which have high growth potential.
Energy

Daewoo E&C keeps proving itself in the areas of project development, financing and construction capabilities in the private energy sector both at home and abroad. We will keep pushing ourselves to be a global energy developer in the private energy sector, which is globally growing significantly.

In 1997, Daewoo E&C had completed the Houay Ho Hydropower project in Laos, the first BOT (Build-Operate-Transfer) project implemented outside and proved its overseas project development and construction capabilities. More recently, we developed, invested in and constructed the Pocheon Combined-Cycle Power Plant project in South Korea, which has been supplying reliable electric energy to metropolitan area since September 2017. To expand our energy business area, we won a contract for a 47MW photovoltaic project, which had turned tangerine fields into solar energy production sites in Jeju Island in South Korea as. Overseas, we have jointly invested with K-water and carried out construction work in the Patrind Hydropower Project in Pakistan, which became operational in November 2017. Through these projects, we have not only been enhancing our business capabilities in energy sector, but also expanding our business area geographically.
Infrastructure

Daewoo E&C is proud to have amassed a large portfolio of infrastructure projects in public-private partnership (PPP). Beyond our extensive experience in delivering infrastructure PPP projects in South Korea - including roads, railways, and harbors - we will continue to expand our presence in the global PPP market.

Daewoo E&C played a key role in carrying out the Geoga Daero project, from planning and finance through to construction and operation. By constructing the first immersed tunnel in South Korea - the longest and deepest immersed tunnel in the world at that time - we proved our superior ability to undertake major infrastructure projects. The sea link also reduced travel time between Busan and Geoje from 3 hours to 40 minutes and improved people's quality of life. We also took part in the Yongin-Seoul Highway as lead manager and completed a 22.9km highway connecting Seoul with Yong-in city which contributed to sustainable development and the distribution of traffic demand in the southern part of the metropolitan area. We contributed to the development of the Guri-Pocheon Highway, the Sosa-Wonsi Double-Track Railway and the Cheonmasan Tunnel and the Ulsan New Port in addition to other large-scale infrastructure PPP projects.
Daewoo E&C opened the Daewoo E&C Institute of Construction Technology (DICT), the first research institute in South Korea’s construction industry, in 1983. Since then, DICT has actively engaged in sector research that maximizes the company’s design, construction and development capabilities. DICT is also carrying out large-scale national, future growth and other projects, contributing to the nation’s overall construction technological prowess.
Leading innovation with the convergence of ICT and construction

Daewoo E&C is catalyzing the rapid advancement of the “Digital Transformation” of the construction industry by combining key technologies of the Fourth Industrial Revolution with proven construction technologies. Creating a roadmap for responding to the Fourth Industrial Revolution, we are focusing on discovering Industrial Revolution with proven construction technologies. Creating a roadmap of the construction industry by combining key technologies of the Fourth

Drone Technology for Efficiency and Accuracy

Daewoo E&C began proactive research into using drones in construction sites, making us a forerunner in this emerging use of technology. We focused on “construction surveying” which led to the application of patents for displacement measurement methods using drones and flat land creation methods. We have also produced advanced survey results that far exceed the existing manpower survey levels by realizing the 3D modeling of construction sites. Since 2016 we have used drones for more than 50 construction sites for detailed designs as well as construction condition surveys in the bidding and early design stages. We are actively applying drone survey technologies to: earthwork volume analysis in large-scale industrial complexes, which have been difficult to measure with existing manpower surveys; coast seawall deformation examination; and reclaimed land management. By doing so, we are maximizing customer value by calculating accurate earthwork volume while also reducing work hours and costs.

We will continue with our research and development into utilizing drones efficiently throughout the entire value chain of the construction industry including facility maintenance and process management.

Pre-Construction, a Virtual Project Simulation Technique

Pre-construction, or pre-con, is a technique employed at the initial project stage to simulate overall design, cost, process, quality and other factors with the participation of builders construction engineer in charge of actual construction. Since 2013 Daewoo E&C has conducted research in this area, creating a pre-con dedicated team and winning a contract for the Austem Ostem Magok Office Building project.

We will continue to support the successful implementation of pre-con by utilizing our existing technologies and the latest technologies such as BIM, laser scanning, and VR/MR. In the future, we will dedicate R&D resources into such areas as modular construction that can maximize pre-con performance.

Daewoo Smart Construction (DSC) System, a Leading Solution in the age of Fourth Industrial Revolution

Daewoo E&C has created the DSC system, which integrates construction and ICT (Information and Communication Technology) into each phase of the planning, design, procurement, construction, and maintenance. Some of these innovations include construction IOT (Internet Of Things), construction automation, BIM (Building Information Modeling)-based construction simulation, analysis of construction information based on the AI (Artificial Intelligence) and big data, development of construction information model using drone and VR/AR (Virtual Reality/Artificial Reality). In developing this new way of working, our goal is to maximize safety, efficiency, productivity of the construction process. We have developed and applied a digital virtual site that can visualize and share construction data about on-site safety, process, and quality in 3D and real-time. The digital virtual site is easily accessed by anyone using the Geographic Information System (GIS) map information and the BIM model. In a future, we plan to provide intelligent total construction solutions that will allow the integrated management of construction stages including planning, design, construction, and maintenance. This will be done by combining AI-using on-site data analysis and risk prediction technologies.
Daewoo E&C is realizing people’s dreams for a cleaner tomorrow. We are promoting the marriage of construction and nature through the development of technologies that maximize energy efficiency and enhance new and renewable energy.

**Advanced Technology, Helping the Environment**

**Zero Energy House Technology - Minimizing energy consumption, energy production**

Daewoo E&C will realize the construction of Zero Energy House, featuring 100% energy self-sufficiency by combining passive technology that minimizes a building’s energy use with active technology that supplies energy. By 2023 we will complete the development of our core “Green Premium” technology, and will continue to apply emerging technologies we have developed to our housing sector. These include a real-time energy monitoring system, a smart batch control switch, a heating energy saving system, a standby power cut-off device, remote meter reading system. In 2010 we launched ZENER HEIM, a zero energy house that is the first eco-friendly residence in South Korea, using over 70 “Green Premium” core technologies. The house’s heating and cooling energy consumption is reduced by 70% or more through automatic window blinds, high-performance vacuum double-layer glazing, vacuum insulation, LED lighting and our custom complex-type functional façade. It also produces its own energy needed for heating, cooling, and lighting appliances using renewable energy systems such as solar power generation, solar hot water supply, geothermal heating and cooling, and fuel cells.

**Prefabricated Segmental CFT Bridge System: Eco-friendly technology overcoming extreme environment**

Developed by Daewoo E&C, the Prefabricated Segmental Concrete-Filled Tube (CFT) Bridge System manufactures CFT - a typical composite material - as standard modules which are then combined to assemble superstructures and substructures utilizing the prefabricated construction method specifically suited to the unique topographical conditions of the bridge. The orientation of the steel and concrete in the CFT cross section optimizes the strength and rigidity of the section. This prefabrication and assembly construction system is uniquely suited to mountainous and other extreme environments where conventional cast-in-place concrete is difficult. Furthermore, the system is eco-friendly and economical, as onsite work time is minimized thereby limiting overall construction timelines.

**Carbon Capture and Utilization: Transforming Global Warming Emissions into Resources**

The DECO2 (Daewoo Elimination of CO2) technology, developed by Daewoo E&C for the first time in South Korea, captures the CO2 emitted from industrial chimneys and utilizes as a construction material while safely and permanently storing CO2. This technology drastically reduces greenhouse gas emissions from 15% to 1% by utilizing an alkali admixture microbubble reactor to capture CO2 in the exhaust gas. The CaCO₃, generated through this process is then mixed with cement and used as a construction material. Daewoo is operating a 40-ton CO2 capture pilot plant at Incheon Youngheung Power Plants. Daewoo plans to respond further to climate change by linking GHG reduction and recycling with construction materials in the future.

**Wind Power**

- Power supply by solar photovoltaic
- Hot water supply by solar heat collection
- Fresh air supply to living room and bedroom
- Using waste heat from kitchen and bathroom
Daewoo E&C is capable of independently designing, constructing and inspecting storage tanks to store large amounts of LNG at extremely low temperatures.

**LNG Storage Tank Design Technology**
This technology has been applied to various projects in Russia and Qatar, as well as other national and global locations. LNG storage tanks are designed for safety using precise temperature analysis for very low temperatures and fires; precise structural analysis for earthquakes and other disasters; and optimization of designs.

**Tank and Piping Corrosion Protection Technology**
Daewoo provides technologies for various materials and environments, including corrosion prevention technology to enable seawater to be used for hydrostatic tests. This technology can allow for testing time and cost reduction in some regions of the Middle East, where water is scarce.

**Automatic Welding and Material Selection Technique**
Improved welding technologies are applied, such as automatic welding, for high efficiency and high quality construction by selecting optimal construction materials and using appropriate welding methods. This contributes to accurate and fast construction.

**Optimum Nondestructive Inspection Technology**
This technology is used to inspect the inside of metals that cannot be visually confirmed by utilizing an image ultrasonic technology which can be applied in various conditions. This optimal technology provides safety for workers while producing high quality outcomes.

**Submarine Pipeline: High-Value Original Technology Challenging Hadal Environment**
Subsea pipelines require robust designs and highly sophisticated, comprehensive engineering technologies to withstand waves, tidal currents, earthquakes, marine landslides and other natural disasters. In 2016, Daewoo E&C independently developed South Korea’s first submarine pipeline design technology, securing a basic technology to meet global standards. This technology, which in accordance with the Det Norske Veritas (DNV) standards, significantly reduces design periods and expenses by developing and packaging key elements of the Front & End Engineering & Design (FEED) design. These include: pipe wall thickness design, On-Bottom Stability, Free-Spanning, Upheaval and Lateral Buckling, Pipeline Protection, Installation Analysis, Expansion analysis and Spool design; and Cathodic Protection design. With an engineering technology that enables pipelines to be installed at the average water depth of 1,000m and maximum depth of 2,000m, Daewoo E&C are expanding our business interests into the deep-sea pipeline market for inter-continental gas transportation, and the electric power transportation market for offshore wind power plants. We are also developing the pre-con virtual simulation technique with the application technology.

**Creating the highest construction value in extreme conditions**
Daewoo E&C is taking on limitless challenges, ranging from the deepest parts of the sea to the highest of altitudes. By developing technology to overcome extreme environments, we are discovering future resources, connecting spaces and building urban landmarks.
Creating a prosperous future for all using advanced construction technologies

In addition to enhancing the technological competitiveness of the company, the Daewoo Institute of Construction Technology (DICT) has led the development of global construction technology for the sector. We are continually challenging ourselves to apply our considerable experience and capability to create innovative spaces that realize peoples’ dreams. We contribute to safer, happier, more livable and more sustainable communities for all by continuously analyzing industrial and lifestyle trends, and integrating this knowledge into every aspect of our work.

### Industrial Property Rights

- **No. of Registered Patents:** 337
- **No. of New Excellent Technology (NET):** 12
- **No. of Utility Model Rights for Green Technology:** 172

### Major Projects

- Songdo NEAT, Songdo OK Center, Vietnam Hanoi Landmark, KEPCO New Office, Joongang Media Network New Office, Joju Worldcup Stadium, Gungo Bridge, Cheonan Bridge

### Large-scale Structure Laboratory

The large-scale structure laboratory conducts structural safety assessments against various forms of external loads such as earthquakes and typhoons. The laboratory is able to conduct full-scale structure tests such as: seismic performance tests of three story buildings; flexural capacity tests with dynamic properties of 20m girders; high performance and precision tests such as pseudo-dynamic tests utilizing digital control systems; and fatigue tests.

**Major Projects**

- Performance test of hybrid dampers
- Performance test of PS outrigger damper system
- Performance test of reinforcing steel anchorage device
- Performance test of girder bridges
- Performance test of concrete-filled tube girder with precast deck
- Performance test of girders for magnetic levitation train
- Durability assessment of PS beam of a reactor containment building

### Wind Tunnel Laboratory

The laboratory is used to evaluate a variety of influences that winds exert on structures to ensure that structures are both usable and safe during high winds and storms. This includes estimating wind power, wind pressure, wind-induced vibrations, and the effects of the wind environment on buildings, bridges and large structures.

**Major Projects**

- Tunnel lining model test (80g), Ground stability test for multi-layer soil (100g), Self-weight consolidation test for the naval base (50g), Stability test for revetment (150g), Stability test for Silhwa Tidal Power Plant embankment (dike, revetment) (100g), Stability test for road embankment with SCP Foundation (100g), Simulation test for the displaced fill method in soft clay soil (100g), Stability test for caisson cross section (100g)

### Acoustics Laboratory

This facility evaluates the quality of building materials in terms of sound absorption and insulation, and the acoustic characteristics of noise sources, equipped with an anechoic chamber and an echo chamber that meet the ISO standards.

**Major Projects**


### Geotechnical Experiment Laboratory

This laboratory uses the Centrifuge to conduct model tests of geotechnical structures and physical/mechanical properties of geo-materials.

**Major Projects**

- Performance evaluation of materials for reduced indoor air pollutant
- Performance evaluation of materials for reduced indoor air pollutant
- Performance evaluation of waste heat recovery ventilation system
- Thermal performance analysis of Gwangmyeong cycle racing velodrome
- Evaluation of temperature and air distribution of Gwangju design center
- Analysis of insulation performance of glass and insulation spacer
- Comparison test of insulation performance of glass and insulation spacer
- Evaluation of indoor air distribution of Busan’s APEC summit conference building
- Analysis of HVAC efficiency of Daegu’s Hall of Science, Technology and Creation
- Analysis of indoor and outdoor air distribution and diffusion pattern of Osan sewage treatment plant

### Mechanical & Electrical Laboratory

This building was designed to conduct research into building environments and facilities, primarily equipped with an artificial climate lab and an air quality lab.

**Major Projects**

- Performance evaluation of materials for reduced indoor air pollutant
- Performance evaluation of waste heat recovery ventilation system
- Thermal performance analysis of Gwangmyeong cycle racing velodrome
- Evaluation of temperature and air distribution of Gwangju design center
- Analysis of insulation performance of glass and insulation spacer
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- Analysis of indoor and outdoor air distribution and diffusion pattern of Osan sewage treatment plant

### Central Laboratory

This multipurpose laboratory is used to conduct basic construction-related tests on concrete, soil quality and the environment.

### Brain House

This facility operates customized training programs to foster the development of talented human resources, equipped with 94 rooms in addition to classrooms.

The Daewoo Institute of Construction Technology, or DICT, is the first construction technology research institute in South Korea and the birthplace of many advanced technologies. Drawing on our accumulated experience and competence, we are contributing to the prosperous development of our society by continuously exploring forward-looking technologies and solutions for tomorrow’s advanced societies.