Modernization of Uzbekistan Building Code (UBC) System

History of Construction Code in Korea

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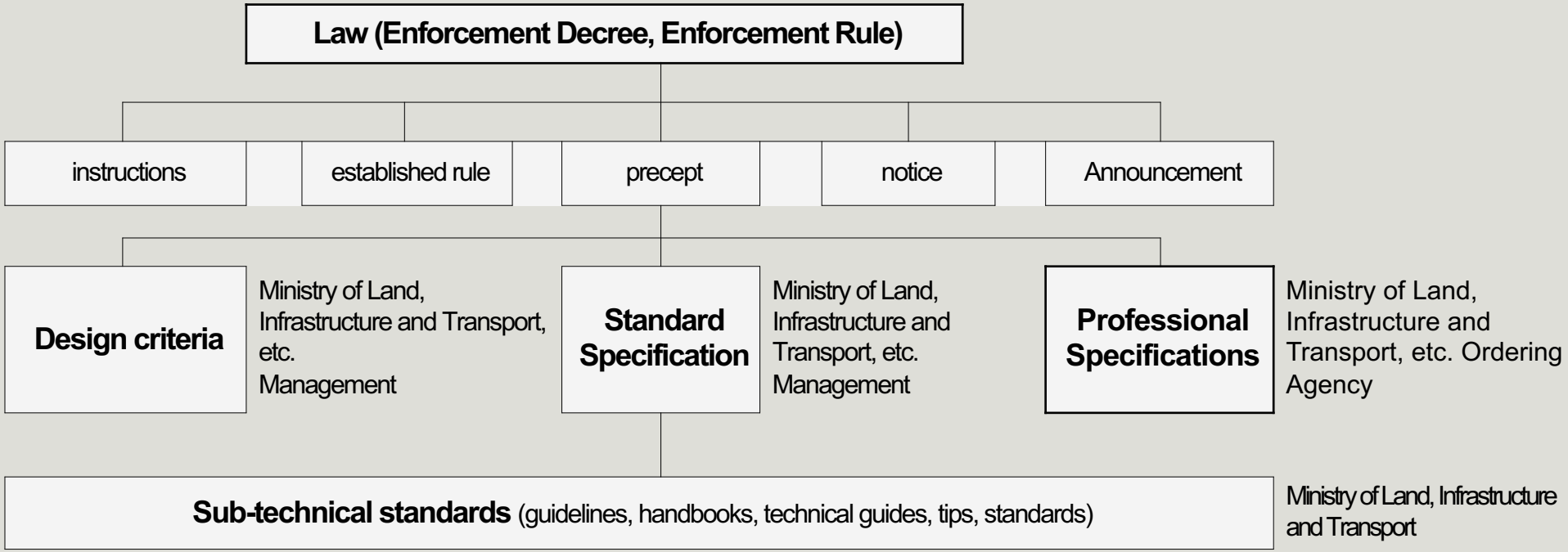
Introduction

▪ Construction Standards

- According to Article 44 of the **Construction Technology Promotion Act**
- **Criteria for the technical and environmental improvement, quality assurance and appropriate construction management**
- Central construction technology deliberation target: There are **specifications** (standard specifications, specialized specifications) and **design standards.**
- **Sub-technical standards** prepared by societies, associations, and ordering organizations: guidelines, handbooks, technical guides, tips, standards, etc.



Introduction

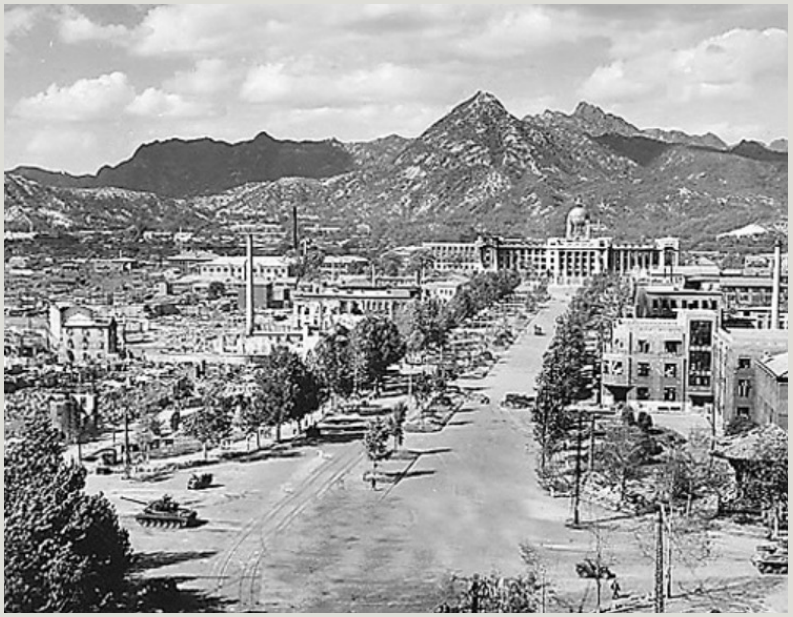
▪ Definitions and Sources of Terms Related to Construction Standards

Terms	Definition of Terms	source
Construction standards	Criteria for the improvement of technical and environmental characteristics of construction work, quality assurance, and proper construction management	Construction Technology Promotion Act Article 44
Design Standards	Criteria that stipulates the limits (minimum limits) of design conditions for the designer to maintain quality, strength, safety, performance, etc. for facilities or work in carrying out design work for each facility	Preparation and management of design standards for construction works
Standard Specification	Standard construction standards set for each facility to ensure safety of facilities and appropriateness and quality of construction execution	Article 65 Paragraph 6 of the Enforcement Decree
Professional Specifications	Comprehensive construction standards for use in the construction of specific construction projects or the preparation of construction specifications for all types of construction based on the standard specifications for each facility	Article 65 Paragraph 7 of the Enforcement Decree
Sub-technical Standards	Standard drawings, guidelines, handbooks, technical guides, work instructions, etc. that define the contents of design and construction standards in more detail	Article 40 of the Operational Regulations on Construction Technology Development and Management

Introduction

- **1950~1953: Korean War**
  - A view of the city of Seoul in ruins after the war

http://www.100ssd.co.kr/news/articleView.html?idxno=17435



http://www.100ssd.co.kr/news/articleView.html?idxno=17435

http://www.wolyo.co.kr/news/articleView.html?idxno=32624

Introduction

▪ Current view of downtown Seoul

https://blog.naver.com/skkim3378/221545258169

https://www.doopedia.co.kr/photobox/comm/community.do?_method=view&GAL_IDX=200615001235986#hedaer

Introduction

▪ History of Construction Standards

- **Investigate the history of changes in construction standards in 10-year units from the 1950s to the present**.
- **Construction standards were enacted and revised while reflecting the economic and social issues, events, accidents, and problems of the time.**
- Investigate **social and economic trends** by year. **completed construction facilities**
- Find out about **incidents, accidents, and representative** by year.
- Comprehensively examining changes in construction-related standards in Korea.

Index	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
GNI per Capita($)	66.50	69.57	64.91	65.57	73.58	81.09	82.01	80.18	84.74	90.89	108.73	107.26	109.58	130.97	149.89	178.36	221.18	257.80	292.40
Accident	한국전쟁 종전																	와우시민아파트붕괴사고	대연각호텔 화재사고
Facility	괴산댐(52)			당인리화력발전소						장충체육관			춘천댐				경인고속도로	경부고속도로	
																		삼일빌딩	
Social Event																			
Building Code						건설업법 제정				건축법	건축사법								
										도시계획법									
Fire Law																			
Environmental Law																			

Introduction

▪ Changes in national income from 1950 to the present

통계청 https://kosis.kr/statHtml/statHtml.do?orgId=301&tblId=DT_111Y002&checkFlag=N

- 1950-1953: Post-war recovery period after the Korean War (US$ 100 or less)
- GNI per capita in 1963: US$103
- GNI per capita in 1977: US$ 1,053 (after 14 years)
- GNI per capita in 1994: US$ 10,357 (after 17 years)
- GNI per capita in 2006: US$ 21,664 (after 12 years)
- GNI per capita in 2017: US$ 31,734 (after 11 years)

1950s (1950~1960)

- **Recovery period after war**
- 1950.12~ : The United Nations Korea Reconstruction Agency(UNKRA) aids in Korean reconstruction
- 1953~ : Restoration and renovation of SCO facilities with assistance from the US Foreign Operation Administration (FOA)
- **Restoration of roads, railways, and power generation facilities damaged by war, and promotion of construction work such as thermal power and hydroelectric power plants**
- **Severe housing shortage due to mass destruction of houses due to war**
  - 1951~1956: Construction of 197,000 **emergency relief houses**
  - 1951~1962: A total of **910,000 housing units** were built nationwide.
  - 1958. 7.18: Announcement of the first apartment sale in Korea
- 1952: Completion of Goesan Dam
- 1956. 5: Completion of Dangin-ri Thermal Power Plant

1950s (1950~1960)

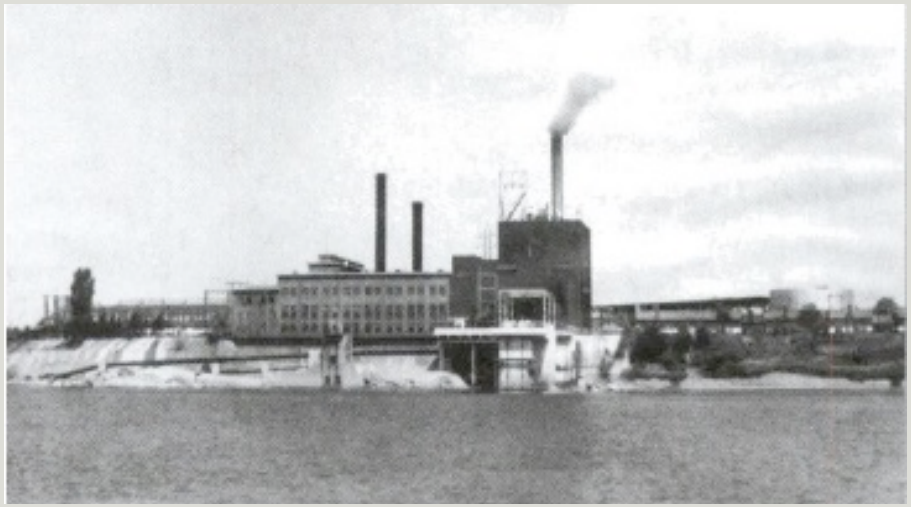
▪ Recovery period after war

- View of a shack in downtown Seoul

- Korea's first apartment for sale (In 1958)

- Goesan Dam (In 1952)

- Danginri Thermal Power Plant Units 1, 2, 3 (In 1956)



1960s (1961~1970)

- **Period of foundation for post-war reconstruction and building projects according to industrialization and modernization**
- **When resource and industrial complex development began**

- **1st Economic Development Plan(1962~1966):** Expansion of key industries and social overhead capital
- **2nd Economic Development Plan(1967~1971**): A leap forward for the construction industry for 10years
  - Rapid growth and structural change of the Korean economy: increased exports, unprecedented boom in the construction industry

- **GNI per capita in 1963: US$103**
- **Housing sector**
  - Intensifying the problem of lack of quantity and poor quality
  - Construction of 866,200 units in 10 years

1960s (1961~1970)

▪ Facilities and construction standards completed in the 1960s

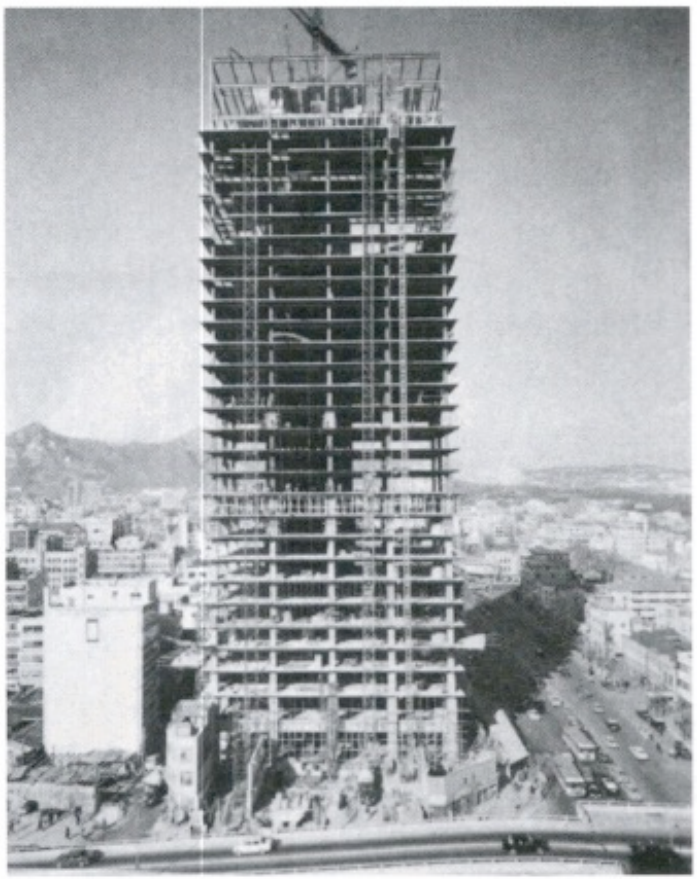
- 1962: National Construction Research Institute established
- 1962. 12: Completed Jangchung Gymnasium
- Chuncheon dam construction in 1965, Seomjingang multi-purpose dam construction in 1965, Uiam dam construction in 1967, Namgang multi-purpose dam construction in 1969
- **1969: Completion of 29.5 km of Gyeongin Expressway (Secure the 7th expressway in the world)**
- **1968. 2.1 ~ 1970. 7. 7: Completion of 428 km of Gyeongbu Expressway**
- 1970. 10: Samil Building (2 stories below, 31 above the ground), the tallest building in Korea at the time

- **As government-ordered projects become larger and more technologically advanced, construction technology inevitably improves rapidly**
- **Railroad Act (1961), Road Act (1961), River Act (1961), Water Supply Act (1961), Survey Act (1961) enacted**
- **Urban Planning Act (1962), Building Act (1962), Medium-term Management Act (1966), Port Act (1967) enacted**

- **Revisions to the building law in the 1960s**
  - Contents related to disasters in buildings in connection with the Urban Planning Act
  - Unlicensed housing, industrialization and security issues centered on large cities: Designation of maximum and minimum heights for permitted architectural uses by area of use
  - **Fire regulations focusing on safety and fire extinguishing**
  - Introduction of regulations such **as underground floor installation, parking lot installation reinforcement, standard design drawings, heat loss prevention**, etc.

1960s (1961~1970)

- Samil Building (In 1970)



〈그림 Ⅰ-176〉 삼일빌딩 건설 공사 현장. 1969년 4월 착공해서 1970년 10월 준공했다. / 출처 : 삼환기업.

- Jangchung Gymnasium (In 1962)

- Opened Gyeongin Expressway (In 1969)

1970s (1971~1980)

- **Aim for US$10 billion in exports and US$1,000 in GNP per capita**

- **First Comprehensive National Land Development Plan (1972~1981)**
  - Efficient use of land for efficient economic growth
  - Establishment of the foundation for national land development to support economic growth
  - Environment conservation according to the development of land-owned resources and the development of large-scale industrial complexes
  - Improvement of urban problems and improvement of living environment

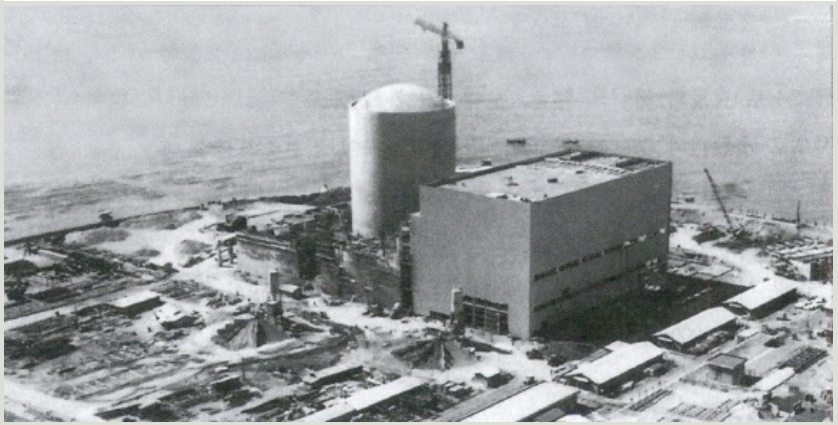
- **Excessive concentration of urban population, deepening polarization of the land, and environmental destruction caused by development are on the rise.**

- **Achieved US$1,053 per capita gross national income in 1977**
- Urbanization rate of 66.4% and housing supply rate of 71.2%

1970s (1971~1980)

- In 1972, International commodity price surge
- **In 1973, The first oil shock**
- **The scale of the economy in the 1970s shifted from a developing country to an industrial-oriented developing country.**
- 1967. 4~1973. 10: Completion of Soyanggang Multi-purpose Dam (Storage capacity of 2.9 billion tons)
- **1974. 8. 15.: Seoul Subway Line 1 opened (total 98.6km)**
- 1970. 9~1978. 4.: Completed **Kori Nuclear Power Plant No. 1 (21st in the world, 3rd in Asia)**

- Seoul Subway Line 1 opened (In 1974)



- Completion of Soyanggang Dam (In 1973)

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← Kori Nuclear Power Plant Unit 1 (In 1978)

1970s (1971~1980)

▪ Wow Citizen's Apartment Collapse (In 1970)

Date of occurrence	▪ April 8, 1970
Causes	▪ Poor construction
Harm	▪ complete collapse of the building ▪ 34 dead, 40 injured
Measures	▪ Implementation of prevention of poor construction

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1970s (1971~1980)

▪ Daeyeongak Hotel Fire Accident (In 1971)

Date of occurrence	▪ **December 25, 1971**
Causes	▪ LP gas explosion
Harm	▪ building burnout ▪ 191 dead, 63 injured
Measures	▪ Establishment of regulations related to evacuation and fire prevention in high-rise buildings

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1970s (1971~1980)

- **10-year housing construction plan(1972~1981)**
  - Target to build 2.5 million homes nationwide
  - In 1972, the Housing Construction Promotion Act was enacted.

- In 1975**, Overseas Construction Promotion Act enacted**. Support for construction companies to enter the Middle East construction market

- **Building Code Revision History**
  - **Most government-led regulations are newly established and strengthened, and preventive supervisory regulations have been introduced and strengthened**.
  - In particular, security and factory-related environmental pollution prevention regulations, urban overcrowding prevention, urban aesthetics, efficient use of land, housing shortage, fire related regulations and penalties, parking lots, energy conservation, simplification of civil complaints and strengthening of regulations.
  - **Firefighting related regulations, energy saving, and security regulations are newly established due to domestic and foreign incidents such as large fires and oil shocks.**
  - New regulations regarding environmental pollution prevention regulations, pollution prevention and standard design drawings of factories.
  - Preparing rules for prevention through the establishment of construction supervision, interim inspection, and maintenance systems.
  - **In the 1960s, fire regulations focused on safety and fire extinguishing, and in the 1970s, regulations for early ignition prevention, evacuation from high-rise buildings, and buildings that are prone to fire were newly established.**

1980s (1981~1990)

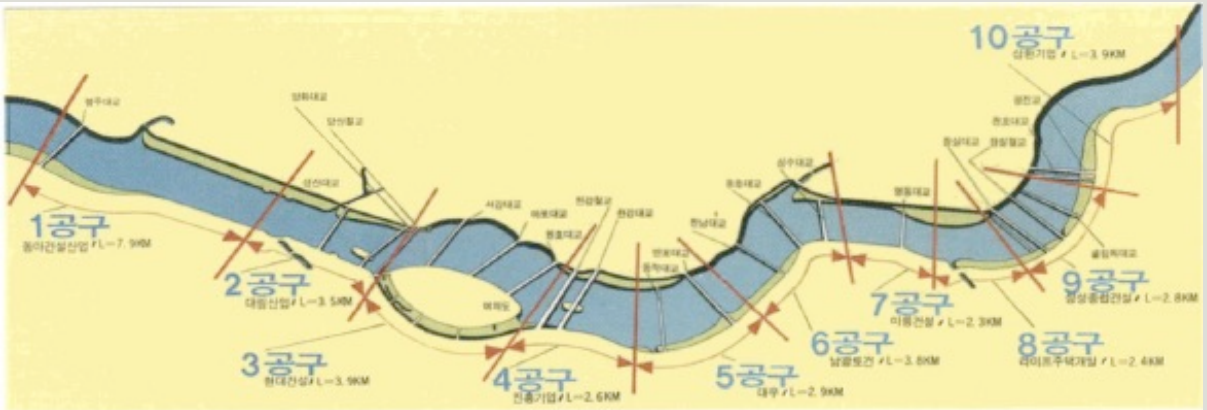
- **The period when national infrastructure began to be reorganized and full-scale urbanization took place**
- National and regional plans are pouring in, and construction of 2 million houses is promoted
- **Distribution of growth emerges as a major issue**
- Promotion of the 2nd comprehensive national land development plan
- In order to correct the phenomenon of overcrowding in the metropolitan area centered on Seoul, the Seoul Metropolitan Area Reorganization Plan is implemented and development profit recovery measures are implemented
- With the complete revision of the Urban Planning Act, the foundation for new town development was established by establishing a basic urban plan, institutionalizing resident participation, and enacting the **Housing Site Development Promotion Act (Bundang, Ilsan, etc.)**

1980s (1981~1990)

- **Construction Environment**
  - **Changes in the construction industry environment**
    - **Rapid decrease in construction orders: The scale of overseas construction orders also decreased sharply in the aftermath of the second oil shock**
    - Fierce competition for orders due to reduction in construction volume
    - In 1989, Manpower shortage and material shortage due to the construction of 2 million housing units
  - **1981. 10: Establishment of Han River Comprehensive Development Project**
  - 1980.2~1985.5: **Completion of Building 63** (the tallest building at the time, 3 stories below and 60 above the ground)
  - **1986 Independence Hall fire incident**
    - Improvement of the construction system and measures against poor construction: **fundamental prevention of poor construction work**
    - Since then, construction companies have established a technology research institute **and expanded investment in technology development.**
  - **Hosted the 1986 Asian Games and the 1988 Seoul Olympics**
  - In 1988. 5: Establishment of the 2 million housing construction promotion plan (1988~1992)
    - Development of 5 large-scale new towns in the metropolitan area

1980s (1981~1990)

- Han River Comprehensive Development Project (In 1981)



자료 : 「한강종합개발사업 건설지」(서울특별시) 및 「동아그룹50년사」

〈그림 Ⅱ-227〉 한강종합개발 제5공구(반포) 건설 공사 현장. / 출처 : 서울시.

- 88 Seoul Olympic Stadium

〈그림 Ⅱ-225〉 올림픽주경기장을 비롯한 잠실 종합운동장. 1975년부터 건설 공사를 시작해 1984년 9월 마무리되었다.

1980s (1981~1990)

- **63Building (1985)**
  - 63 Fl : B3F / 60 F, 274m

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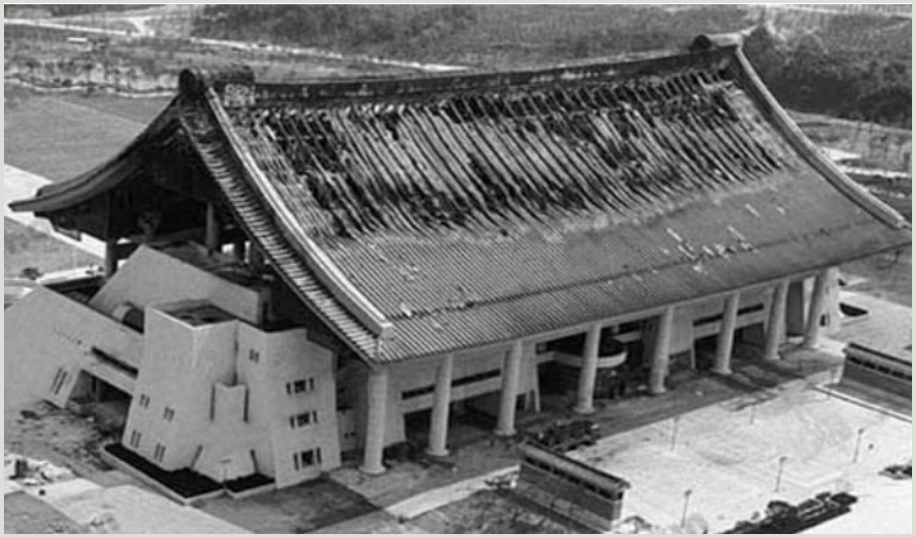
1980s (1981~1990)

▪ Independence Hall Fire Accident (1986)

Date of occurrence	▪ August 4, 1986
Causes	▪ Electrical short circuit due to poor construction
Harm	▪ main building roof burnout
Measures	▪ Improvement of construction system and measures to prevent insolvency (1987. 2) ▪ Improvement of the license system ▪ Improvement of the bidding and contract system ▪ Establishment of responsible construction and supervision system ▪ Soundness of the subcontracting relationship ▪ Construction Technology Management Act enacted



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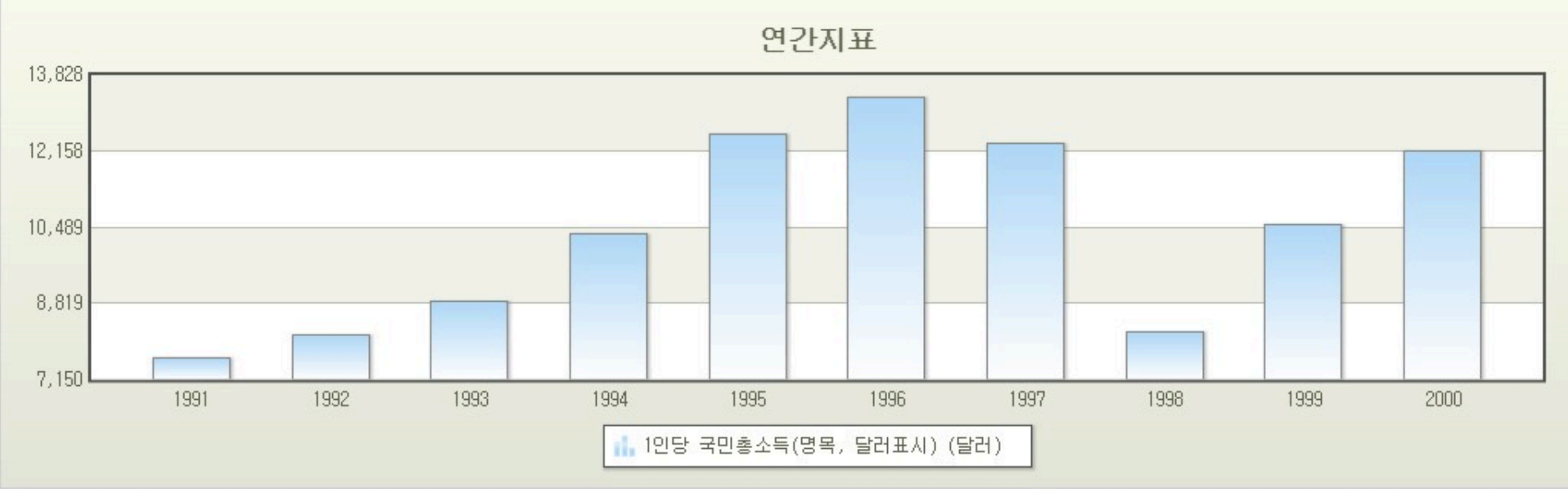
1980s (1981~1990)

- **Building Code Amendments**
  - **Reinforcement of preventive regulations to prevent poor construction in advance** based on the mitigation direction
  - Regulations are prepared to reflect the introduction and activation of multi-family housing, the introduction of urban design, and the relaxation of the floor area ratio
  - Housing shortage regulations, simplification of civil complaints, regulations on deregulation, urban aesthetics, urban overcrowding, penalties, security, ordinance regulations, disabled people and earthquake regulations are highlighted
  - Introduction of the urban design system and **resident supervision system**, and expansion of the object of construction report

- **Enactment of Construction Technology Management Act (October 24, 1987)**
  - Enactment of Construction Technology Management Act **to promote technology development in the construction industry** in the wake of the fire at Independence Hall
  - Unification of the ‘Construction Industry Act’, ‘Technical Service Promotion Act’, and ‘National Technical Qualification Act’ scattered across government ministries
  - At that time, when the construction industry entered overseas markets, it was judged that it was urgent to develop construction technology in preparation for the increase in orders for technology-intensive construction and the upcoming domestic construction market opening.

1990s (1991~2000)

- 3rd comprehensive national land development plan stage **: social interest in quality of life and environmental issues**
- urbanization rate 88.3%, housing supply rate 96.2%
- **Seongsu Bridge and Sampoong Department Store collapse, IMF bailout, etc. Social and economic difficult times**
- In accordance with the government's globalization and localization policy, we aim to prepare domestic building standards that meet international standards, simplify civil complaints, and eliminate regulations
- **In line with the succession of major building disasters, the law on building safety standards and inspections has been strengthened**
- Significantly simplify the construction procedure, supplement the construction supervision system to improve the quality of buildings, and strengthen penalties for poor design and construction supervision
- **Achieved per capita gross national income of US$10,357 in 1994 (17 years required)**



1990s (1991~2000)

- **Large-scale accidents :** the collapse of the Olympic Bridge, the collapse of the Paldang Bridge, the collapse of the Sinhaengju Bridge, the collapse of the Cheongju Uam Shopping Mall, the collapse of the Seongsu Bridge, the explosion of the Daegu subway construction site, and the collapse of the Sampoong Department Store
- 1993. 12: **Market opening of all industries according to the Uruguay Round (UR) agreement**
- 1993. 8. 12: Implementation of real-name financial system
- 1995. 7: Real-name real estate system
- 1995: World Trade Organization (WTO) launched
- 1996: The era of full-scale liberalization of the construction market by **joining the Organization for Economic Cooperation and Development (OECD)**
- 1996. 12: Enactment of the Framework Act on Construction Industry- **Extensive overhaul of construction systems and policies for the opening of the domestic construction market in accordance with globalization and major construction-related accidents**
- **1997.12: International Monetary Fund (IMF) foreign exchange crisis: restructuring of the construction industry**
- Summary of the construction industry environment in the 1990s: **bubble, insolvency, openness, restructuring**

1990s (1991~2000)

- **1998 : Malaysia Petronas Twin Tower**
  - 1998 ~2003 : World Tallest Building, 88 Floor, 452m

1990s (1991~2000)

▪ Sinhaengju Bridge pier collapse (In 1992)

Date of occurrence	▪ July 31, 1992
Causes	▪ Poor construction
Harm	▪ bridge collapse ▪ 34 dead,40 injured
Measures	▪ Establishment of measures to prevent insolvency in construction work ▪ Introduction of Responsibility Management System to Public Corporations ▪ Introduction of the pre-bidding qualification screening system

https://news.kbs.co.kr/data/news/2015/07/31/3122438_4ZB.jpg

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1990s (1991~2000)

▪ Collapse of Cheongju Uam Shopping Street Apartment (In 1993)

Date of occurrence	January 7, 1993
Causes	• Poor construction (rebar spacing, insufficient thickness of fireproof coating, etc.) • **Gas explosion**
Harm	• Collapse of buildings • 28 dead, 48 injured
Measures	• Identification of construction irregularities and measures to prevent those • Establishment of the Anti-Corruption Countermeasures Committee under the leadership of the Board of Audit and Inspection

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1990s (1991~2000)

▪ Seongsu Bridge Collapse Accident (In 1994)

Date of occurrence	▪ October 21, 1994
Causes	▪ Poor construction: Poor welding of truss connection joints ▪ **Neglect of maintenance and inspection**
Harm	▪ 32 dead, 17 Injured
Measures	▪ **Enactment of Special Act on Facility Safety Management** ▪ **Permission to enter foreign supervisory companies**, introduction of design supervision system, establishment of comprehensive supervision system improvement plan ▪ Strengthening the safety management system of existing facilities

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1990s (1991~2000)

▪ Daegu Subway Gas Explosion Accident(1995)

Date of occurrence	▪ April 28, 1995
Causes	▪ City gas pipe penetration during subway construction excavation ▪ Gas leak explosion
Harm	▪ 101 dead, 202 injured
Measures	▪ Preparation of measures to strengthen the safety management system for underground excavation sites ▪ Computerization of information related to underground facilities and reinforcement of management of underground excavation sites, etc.

https://w.namu.la/s/77212ba03bf2435563082188996224 45c017d96a18e1af17cc67a495801b96c350ca7856674c3b3b753b02df2c2ccaa133e36897709a7a3d9843d034e915d228d5f21a454245d99132b1336c6fafd4ee

1990s (1991~2000)

▪ Sampung Department Store Collapse Accident (1995)

Date of occurrence	▪ June 29, 1995
Causes	▪ Poor construction ▪ Illegal unauthorized extension and structural change (free plate structure)
Harm	▪ Partial complete collapse of a building ▪ 502 dead, 937 injured, 6 missing
Measures	▪ Reinforcement of design and supervision of private multi-use buildings, etc. ▪ Establishment of measures to prevent poor construction and secure building safety

https://blog.kakaocdn.net/dn/b5l92s/btq6RlHaJ7H/tlCEUi2ajWbKB3TXfo0sOK/img.jpg

https://img8.yna.co.kr/photo/old/data2/orign_img/2002/08/19/2020819_0021_P4.jpg

1990s (1991~2000)

- **Enactment of Special Act on Facility Safety Management (1995. 1. 5)**
  - Legislation was enacted as a system to ensure the safety of maintenance and management of facilities after completion in response to continuous safety accidents such as the collapse of Seongsu Bridge and the collapse of Sampoong Department Store
  - **Periodic safety inspection institutionalization** of 30,000 major facilities nationwide (bridges, tunnels, dams, subways, multi-use buildings)
  - Mandatory safety measures such as repair and reinforcement according to inspection results
  - Establishment of a facility information system that **computerizes the life cycle history of facility design, construction, diagnosis, and incidents**
- **Establishment construction information system**
  - After the Daegu subway gas explosion, the need for construction information for the safety management of facilities emerged
  - Establishment of **'Construction Information Integrated Computer Network'** to prevent poor construction
    - Integrated management of information generated in the entire process of planning, design, contract, construction and maintenance of construction work
  - Standardize design, materials and construction methods
- At January 13 1997, Revision of Construction Technology Management Act

  : **Mandatory establishment of safety management plan**

2000s (2001~)

- **2000's**
  - It is the 4th comprehensive national land development plan stage, and the plan that started in the 1960s has ended.
  - As the time to emerge as a central country in Northeast Asia, **advanced country-type land management plans began to be pursued, and balanced regional development and sustainable land management were emphasized.**
  - Urbanization rate 85.4% in 2015
  - In 2002, the housing supply rate exceeded 100%
  - **Achieved US$21,664 in GNI per capita in 2006**

2000s (2001~)

- **2001. 3 : Incheon International Airport opend**
  - Phase 1 (2001)

  - Phase 2 (2008)

https://www.airport.kr/ai/ko/index.do

  - Phase 3 (2017)

  - Phase 4 (2024)

2000s (2001~)

- **2001. 11 : Opend Seoul World Cup Stadium**

https://ww.namu.la/s/9ff4f722de0faf71743a4df184c17f894dd84c98a273d59b2ea88ef02b6acbda16cd25ca5221fd91849b53fb2b1548a37598e9e212a8fbbc820681f2e6f9e61caa36464733aac20636de7d7ac5aa756461623d557ba85e6d8ac380475f8f33cf59d5f68128fc08f57ebfdc6a5ec1dfd2

https://ww.namu.la/s/9ff4f722de0faf71743a4df184c17f894dd84c98a273d59b2ea88ef02b6acbda16cd25ca5221fd91849b53fb2b1548a37598e9e212a8fbbc820681f2e6f9e61caa36464733aac20636de7d7ac5aa756461623d557ba85e6d8ac380475f8f33cf59d5f68128fc08f57ebfdc6a5ec1dfd2

2000s (2001~)

- **2003 : Taiwan Taipei 101 Tower**
  - 101 Floor, 509m
  - 2003 ~ 2010 World Tallest Building

https://en.wikipedia.org/wiki/Taipei_101#/media/File:Taipeh_Taipei_101_16.jpg

2000s (2001~)

- **2004. 4. 1 : Gyeongbu high-speed railway line**

  - **5th Country with high-speed rail in the World**
  - Seoul-Pusan 417km : 2H 18Min
  - Max Speed : 305 km/h

http://www.mcnews.co.kr/imgdata/mcnews_kr/201012/20101203_094518_559f369.jpg

http://www.mcnews.co.kr/imgdata/mcnews_kr/201012/20101203_094518_559f369.jpg

2000s (2001~)

- **2009 10 : Incheon Bridge**
  - 21.38 km Length
  - 1st Longest Bridge in Korea

https://ww.namu.la/s/54cd7f5bf772e24b18ef76c5ba95bfa6edfea4da51faa09b1d1e20329dcec912c0783924051e98588050ee792ef1420cede85fd282c2aa8b95c0ddf37b8b187bd9a3bd7d3c5ea39370cc407d34b2b9d9d59d4173acaf323940d9fbb5d0495441a506eda086f66c92fe7a72d0080c30c4

https://w.namu.la/s/c1d3c3a4a7f2de95c141ce9d0dc794e67f46be0b4f745a5d135ce6cb38e3f15bc74fcd0f6a0efd50172a2daa1b117679a6d1b035ee3c7a5946ee6f3d29cd6c6071a9460dd9dde52c0b5c69114dddc17989ad8e65621131ffd1d04a3487984440

2000s (2001~)

- **2010 : Dubai Burj Khalifa**
  - 163 Floor, 829m
  - **2010 ~ Current : the tallest building in the world**

2000s (2001~)

- **2017. 2 : Lotte World Tower**
  - B6 / 123 FL, 555m
  - Currently the tallest building in Korea

https://dimg.donga.com/egc/CDB/SHINDONGA/Article/14/90/86/14/1490861426859.jpg

https://www.hankyung.com/economy/article/2020072092451

2000s (2001-)

▪ Fire in Icheon Refrigerated Warehouse

Date of occurrence	▪ January 7, 2008
Causes	▪ Misfire caused by welding sparks
Harm	▪ Total burnout of the building ▪ 40 dead, 9 injured
Measures	▪

http://www.fpn119.co.kr/imgdata/fpn119_co_kr/200812/200812235505875.jpg

https://t1.daumcdn.net/cfile/blog/165D4C594DF7931C2B

2000s (2001~)

▪ In 2014, Gyeongju Mauna Resort Gym Collapse Accident

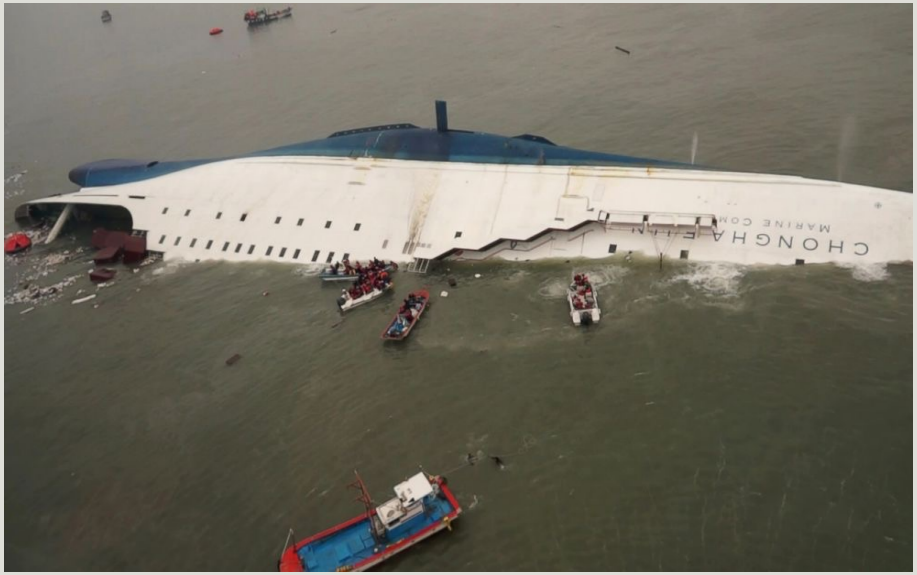
Date of occurrence	February 17, 2014
Causes	• Use of PEB method to finish with sandwich panel on the steel structure of the gym • Heavy snow: The snow load standard itself was low, and the snow removal work was insufficient.
Harm	• Building collapse • 10 dead, 124 injured
Measures	•

https://news.sbs.co.kr/news/endPage.do?news_id=N1002264872

2000s (2001~)

▪ Sewol ferry sinking

Date of occurrence	▪ April 16, 2014
Causes	▪ Lack of stability due to vessel extension, overload, rapid change of route, etc.
Harm	▪ Ferry sinking ▪ 299 dead, 5 missing
Measures	▪ **A reminder to strengthen the safety system for society in general in Korea**



https://namu.wiki/w/%EC%84%B8%EC%9B%94%ED%98%B8

https://www.donga.com/news/Society/article/all/20200117/99266838/1

2000s (2001~)

- **Earthquake**

Location	▪ **Gyeongju**	▪ **Pohang**
Date of occurrence	▪ September 12, 2016	▪ November 15, 2017
Causes	▪ Richter 5.8 magnitude earthquake	▪ Richter 5.4 magnitude earthquake
Harm	▪ 23 injured, property damage 11 billion won	▪ 135 injured, Property damage 332.3 billion won
Measures	▪ **Expansion of buildings subject to seismic design duty**	

https://img0.yna.co.kr/photo/yna/YH/2016/09/13/PYH2016091300680005200_P4.jpg

https://blog.naver.com/ijtj7872/221156969217

2000s (2001~)

- **Nationwide sinkhole (ground subsidence) occurrence**

https://www.hankookilbo.com/News/Read/202002141818723340

https://www.hankyung.com/society/article/2020082693117

https://newsis.com/view/?id=NISX20210901_0001567739

https://www.joongang.co.kr/article/22944761#home

2000s (2001~)

- **1999. 3: Introduction of the CM(construction management**
- 2001. 12: Systematized management of design documents to strengthen facility safety management
- 2008. 1: Prevention of poor feasibility of large-scale national projects
- 2008. 8: Reinforcement of the responsibility of construction participants for insolvency and safety accidents due to the increase in safety accidents and accidents at construction sites
- 2008: **Building Framework Act enacted: Acting as the parent law in the field of architecture.**
  Present the goals, directions, outlines, etc. of national policies and systems in the field of architectural administration
- 2009. 12: Reinforcement of career management for construction engineers to prevent insolvency and improve quality of construction work
- 2010. 1: Reinforcement of ex post evaluation of public works by revision of implementation guidelines for ex post evaluation of construction works
- 2014: Prevention of noise between households and floors, prevention of crime in buildings, reinforcement of material safety in indoor construction
- 2015 : Prevention of Safety Accidents in Special Structured Buildings Following the Gyeongju Mauna Resort Collapse Accident

2000s (2001~)

- **2014. 4: Establishment of the National Construction Standards Center** (reorganization of complex construction standards)
- 2015. 7: Structural review of temporary structures and confirmation of structural safety of temporary structures during construction
- **Following the Sewol ferry sinking accident in 2015**, the National Ministry of National Safety was established and **the construction safety management system was strengthened**
- 2015: **Reinforcement of ground investigati**on due to occurrence of sinkholes (ground subsidence) nationwid

▪ Construction Technology Promotion Act enacted (2014. 5)

- Enforcement of the full revision of the Construction Technology Management Act to the Construction Technology Promotion Act
- Reinforcement of support for construction technology and construction services by shifting **from 'management' to 'promotion'**
- The purpose of securing competitiveness of construction technology services in the global construction market
- Improvement of the construction technical manpower management system, fostering of construction technology service industry, integration of supervision and CM, etc.
- Index of Construction Engineer's Competency, ICEC: Comprehensive evaluation of technician experience, academic background, and qualifications

2000s (2001~)

▪ Building Code Amendments

Year	Contents
2005	Creating a comfortable living environment: Added a part related to indoor air quality to the building finishing material standards
2006	**Introduction of eco-friendly building certification system**
2006	**house performance rating system**
2008	Implementation of the Green New Deal policy to overcome the global financial crisis and expand finance: support for low-carbon green growth
2008	**Establishment of building energy efficiency rating certification system**
2010	Clarify noise and vibration management targets. Create a noise map. Construction site noise measurement
2011	Induce **the activation of intelligent building construction** by introducing the intelligent building certification system
2012	High-rise building definition: A building with 30 stories or more than 120m in height. Check whether seismic performance is secured
2012	**Enactment of Green Building Support Act**

Conclusion

- After the Korean War in 1953, GDP per capita grew rapidly **from US$103 per capita in 1963 to US$31,734 in 2017**
- **The contribution of the construction industry to Korea's economic development is very high**
- There are many symbolic and landmark facilities in Korean construction history
- **Construction standards are continuously enacted and revised according to economic, social, and political conditions by year**
- Many parts have been remarkably improved with preventive measures caused by various construction accidents
- **In particular, after a major construction accident in the 1990s, the construction standards underwent many changes**
- Currently, it possesses world-class construction technology in skyscrapers, bridges, and tunnels
- **Continuous revision work is necessary in the future social and economic flow**

Modernization of Uzbekistan Building Code (UBC) System

Thank you

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