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The Need for Building User Manuals and Policy Implications

Introduction

The Korean government has made it mandatory that product information be provided to protect the rights and interests of consumers and establish fair trade. However, there are currently no legal obligations related to buildings information. Most building information is customized and managed centrally to accommodate local governments' administrative interests. Advanced other countries are trying to standardize the construction industry in order to revitalize the building maintenance trade, improve the property performance and lifespan of the buildings, expand asset values, and protect the consumer rights through fair and responsible building transactions; one step towards this goal is the provision of information and manuals. This research discusses the necessity of introducing building manuals in Korea and to outlines policy implications through an analysis of the purpose, application, and main contents of building user manuals in Korea, the UK, and Japan.

Korea's building information is limited to specific types of structures, according to public management purposes.

Korea's collected building information centers on multi-use buildings, structures with a floor areas greater than 3,000m², elevators in buildings with

more than 150 or 300 households, and apartments with centralized heating. In particular, small- and medium-sized buildings such as single-family homes not subject to maintenance and inspection obligations, apartment buildings with less than 300 households that do not have elevators, and small commercial facilities all reside in an administrative blind spot for construction information. By contrast, in the UK, builders are obliged to record building information for all new and renovated buildings. Japan requires the recording of information for buildings that are difficult to maintain, such as private rental houses.

Table. 1 Applied to Building Information in Korea, the UK, and Japan

Nation	Case	Building				
		Small houses	Public rental housing	Multi-family housing	Public use facilities	Condominium buildings
Korea	Inspection Maintenance Manual for Buildings				●	●
	Zero Energy Apartment Houses Operations Management Manual					
	Maintenance Manual for Apartment Houses			●		
	Healthy House User Manual			●		
	Safety Inspection Manual for LH Multi-Unit Purchase Rental House		●			
	Our Home Instruction Manual			●		
	Apartment House Resident Guide			●		
	My House Instruction Manual	●				
UK	Building Log Book	●	●	●	●	●
	Tenants' Handbook		●			
	Building User's Guide	●	●	●	●	●
Japan	Mansion Mirai Net		●	●		
	User Maintenance Manual for Public Rental Housing		●			
	Recording of House History Information			●		

Korea's building information tends to be limited to topics of preventive maintenance, safety inspections, improvement of building performance to increase asset value, and management issues related to extending the building's lifespan. Advanced other countries building information is often used to standardize the construction industry, promote the building maintenance industry, manage the performance and lifespan of the building, improve asset value, protect consumers' right to use the building through fair and responsible building transactions, and establish a variety of policy goals.

Table. 2 Operational Purposes of Building Information in Korea, the UK, and Japan

Nation	Case	Operational Purpose
Korea	Inspection Maintenance Manual for Buildings	Maintenance of existing structures and systematic safety checks
	Zero Energy Apartment Houses Operation Management Manual	Evaluation and accreditation of environmental friendly buildings
	Maintenance Manual for Apartment Houses	Facilities and living norms of tenant maintenance
	Healthy House User Manual	Creating a comfortable residential environment and healthy house
	Safety Inspection Manual for LH Multi-Unit Purchase Rental Houses	Safety inspections for small houses
	Our Home Instruction Manual	Living convenience and safety for residents
	Apartment House Resident Guide	Living convenience and safety for residents
	My House Instruction Manual	Building trust between owners and architects Providing quality building services Support for user maintenance
UK	Building Log Book	Increasing managers' understanding of the building maintenance Recording the building acquisition process Recording of energy performance data Providing accurate information when dealing with the building trades and substantial repairs Standardization of the architecture industry Improvement of user satisfaction and support for user maintenance
	Tenants' Handbook	Users' maintenance responsibility Longevity of public rental housing
	Building User's Guide	Maintaining the performance of eco-certified buildings (BREEAM)
Japan	Mansion Mirai net	Rational maintenance Transaction activation for used mansions
	User Maintenance Manual for Public Rental Housing	Effective building maintenance
	Record of House History Information	Development of quality housing inventory

Advanced other countries building information often includes items such as design books, management and usage methods, and emergency information.

Overseas building information often includes design documents, building status, and performance, general information about the building, management and usage methods, and emergency information. This collected data can be useful not only to users, but also to managers and architectural service providers. In Korea, the collected information is specific to performance, usage and management methods, and life guidance items; moreover, it is required only for multi-use buildings, collective structures, multi-family houses, and specialized constructions. The case analysis results for each country highlight how important it is to provide basic design documents to users and administrators alike, in order to improve

buildings' maintenance and use. In both Korea and overseas, Zero Energy Apartment Houses are required to provide final construction drawings and specifications to managers, but it is important that minimum floor plan information be provided in Korea in other cases.

Table.3 Contents of Building Information in Korea, the UK, and Japan

Nation	Case	Category	Contents
Korea	Inspection Maintenance Manual for Buildings	Current Status of Building	Retaining wall, grounds, landscaping, public notices, roads, fences, coverage ratio, volume ratio, notices, height, roof, advertisements, structure, rooftop, seismic design
		Performance	Corridors, stairs, exit performance, rooftop square, fire doors, shutters, boundary walls, smoke exhaust systems, fireproof structures, firewalls, exterior walls, windows, interior finishing materials, exterior finishing materials, underground fire protection facilities, insulation performance, window confidentiality, eco-friendly certification, intelligent certification, energy efficiency grade certification, etc.
		Equipment	Water supply, drainage, cooling, heating, ventilation, air conditioning, lighting, broadcasting, electrical equipment, elevator
	Zero Energy Apartment Houses Operations Management Manual	Books	Final construction drawings, specifications, plan view
		Manual	Equipment and landscape maintenance manual, heating and cooling Equipment Manual
		Management Method	Roof top waterproofing inspection method, structure, non-proof wall inspection method, data on heating, heating and gas supply, water supply, drainage and sanitation, materials related to lighting, electrical facilities and information, communications facilities, inspection and replacement methods, operation methods, preventive maintenance methods
		Contact	Equipment and facility installer, maintenance person contact, living etiquette
	Maintenance Manual for Apartment Houses	Management Method	Public facilities management, repair work, safety management, parking management, garden / tree management, cleaning, garbage disinfection, expense management
		Management Protocol	Management fee collection, accounting management, resident representative meeting and management protocol operation, support for joint living standards, and support for various residents' self-governing organizations
	Healthy House User Manual	How to Use	How to use ventilation equipment and other equipment, how to operate appliances
		Management Method	Maintenance of ventilation facilities, prevention of condensation, reduction of pollutants
	Safety Inspection Manual for LH Multi-Unit Purchase Rental Houses	Management Method	Retaining wall, grounds, repair and reinforcement method of housing structure, safety check items

Korea	Our home Instruction Manual	How to Use	Outline, precautions for moving in, items to be processed after moving in, entrance, security facilities, gas / water supply / lighting facilities, fuselage detectors, telephone, unmanned security system and other living information
		Management Method	Flooring management, prevention of condensation and fungus, safety and accident prevention method
	Apartment House Resident Guide	Living Guide	Etiquette, entrance procedure, confirmation after entrance, management fee, garbage disposal, community life guide, facilities instruction manual (electric lamps, internet, air conditioners, garbage disposals, water savings, pedals, fire extinguishers, electric outlets, drying tables, ovens, cooktops, door locks, hypertrophy, etc.)
		Management Protocol	General rules, tenants' rights, residents' meetings, community activities, election management committee, housing management, administration, accounting, penalties, etc.
		Wall Pad Users' Guide	Home security, home control, communication, life information, environment setting, ARS, smartphone app setting, etc.
	My House Instruction Manual	Books	Each floor plan
		Management Method	AS contacts by construction type
		How to use	Instruction manual (conservation wood, Ondol floors, water waves, painting, curtain rods), boiler, inside and outside sewer, water meter inspection, lighting items (lamp specifications, replacement methods), indoor finishes, kitchen furniture, bathroom furniture, doors, exterior finishes product codes, etc.
UK	Building Log Book	Books	Design book
		Performance	Related laws, building energy performance records, maintenance inspection results, indoor air quality, certificates, etc.
		Building Status	Building history, building outline, building design status, occupation area
		Contracts	Contracts, commissions, submission, compliance
		Management Method	Water management, waste management, control devices, residents information
	Tenants' Handbook	Management Method	Repair and replacement procedures and expenses in case of building damage; cleaning and maintenance by space, subject, cycle, and method; alarm check method
		How to Use	Guidelines for community living, maintenance of windows and balconies landscaping, place and method of installation of frame and picture, repair request method and maintenance of building parts, contact for fire, accident manual
	Building User's Guide	General Information	General information, building environment, lift, escalator, security system
		Emergency Information	Fire response and warning devices, fire evacuation procedures, first aid
		Building Status	Information on policies, energy and environmental laws, annual building energy consumption, energy conservation methods, machinery, electrical and communication facilities, and how to use them
		Management Method	Water and wastewater management, drinking water supply, materials purchases, waste management, transportation, parking, remodeling and expansion, relocation of furniture, maintenance reports and request procedure, maintenance personnel

UK	Building User's Guide	Education	New tenants, visitors, contractors, professional training on building services, energy savings methods, equipment training, social responsibility training, etc.
Japan	Mansion Mirai Net	Architecture Overview	Land, building area, exclusive composition, structure, number of floors, new construction year, attached facilities, new construction information
		Performance	Earthquake countermeasures, insulation measures, barrier free zones, house performance evaluations, existing house performance evaluations
		Management Method	Management system, union, public insurance, accounting and management cost information, space scope and space-specific management contracts, management fees, long-term repair allowance, management combination, dedicated partial repair method, prohibited matters, calculation method, etc.
	User Maintenance Manual for Public Rental Housing	Management Method	Exterior wall coating, waterproof roof insulation, waterproofing of floor staircase, stair railings, balcony floors, waterproofing, railings, water line replacement drain replacement, TV co-replacement, lighting replacement
		How to Use	Exterior, walls, windows, floors, exterior windows, drainage equipment, bathtubs, electrical equipment, fixtures, ventilation, gas, ventilation drying equipment
	Recording of House History Information	Building Status	Housing environment, residential area
		Management Method	Deterioration countermeasures, earthquake resistance, maintenance, variability, barrier-free zones, energy efficiency, maintenance plan

Korea's information is limited to users such as public administrators, architects. The information provided concentrates on multi-family houses or specialized houses. Conversely, the United Kingdom's (Building Logbook), is closely aligned with industries such as related associations, architects, facility managers, developers, real estate agents, building materials companies, and users.

Table. 4 Users of Building Information in Korea, the UK, and Japan

Nation	Case	Information User				
		User (Tenant)	Manager (Inspector)	Public	Real Estate Agent	Building Services
Korea	Inspection Maintenance Manual for Buildings	●	●			
	Zero Energy Apartment Houses Operations Management Manual	●	●			
	Maintenance Manual for Apartment Houses	●	●			
	Healthy House User Manual	●				
	Safety Inspection Manual for LH Multi-Unit Purchase Rental Houses		● (LH)			

Korea	Our Home Instruction Manual	●				
	Apartment House Resident Guide	●				
	My House Instruction Manual	●				
UK	Building Log Book	●	●		●	●
	Tenants' Handbook	●	●			
	Building User's Guide	●				
Japan	Mansion Mirai Net	●				
	User Maintenance Manual for Public Rental Housing	●	●			
	Recording of House History Information	●		●		

A building user manuals is required to protect consumers' interests in small and medium-sized buildings, and establish a fair market trading systems

The current laws and ordinances established to protect the rights of general consumers to consume products included the Framework Act on Consumers, the Product Liability Act, and Quality Control and Safety Management of Industrial Products Act. The Product Liability Act stipulates protections for victims of product defects and manufactures' liability for damages. It is designed to improve safety and encourage development of the national economy. In accordance with Article 22 of the Quality Control and Safety Management of Industrial Products Act, the Minister of Trade, Industry, and Energy determines the standards of safety and quality for industrial products, and presents them to consumers. The Fair Trade Commission, in accordance with the "Act on Fair Labeling of Advertising," requires operators and others to display and advertise important information to protect consumers and maintain fair trade.

On the other hand, there are legal specifications only for the display and advertising of important items related to pre-sale buildings, apartment buildings, sports facilities, swimming pools, and fitness centers. Thus, it is necessary to establish mandatory publication of important building information that can affect users' lives, bodies and property, in order to protect users' right to and reasonable choice in transactions related to small-and middle-sized building.

In order to introduce the use of building user manuals, it is necessary to improve the management design books and their specifications

Improving the system would mean requiring that design documents and specifications for small and medium-sized buildings currently excluded from existing buildings and maintenance inspections to be delivered to managers and users. Right now, even if design books and specifications are available, they are likely inaccurate. Design documents are often changed during the construction process, but after construction is completed, they are not rewritten.

Therefore, to date there has been no study that accurately grasps the state of these buildings.

It is important to establish the information provider responsible for building production and maintenance, according to Korean conditions.

Advanced other countries, the Responsibility to generate building information is specified throughout the entire process such as architects, managers, clients, and users. In Korea, However the Responsibility is limited to architects, contractors and supervisors. Two current Weaknesses points that legally stipulates the responsibilities for each entity, and without legal obligation to display important information on buildings are need for improvement.

Governance should be established for the construction and provision of building information.

Advanced other countries, the creation and management of building use information can be instigated by the public sector, private sector, and the associations related to the building industry. In Korea, architects (in their construction permission applications), construction companies (in their construction reports), and supervisors (in their supervisory reports) all participate in the creation of building information. The system for requiring and managing this information, however, is not linked each participate. So it is unable to assign participants the responsibility to provide certain types of information, and thus often information can be lost. Therefore, it is necessary to divide the responsibilities for information provision among the subjects generating existing building information. A specialized agency should be created to design and operate this process, considering the policy promotion conditions of the government.

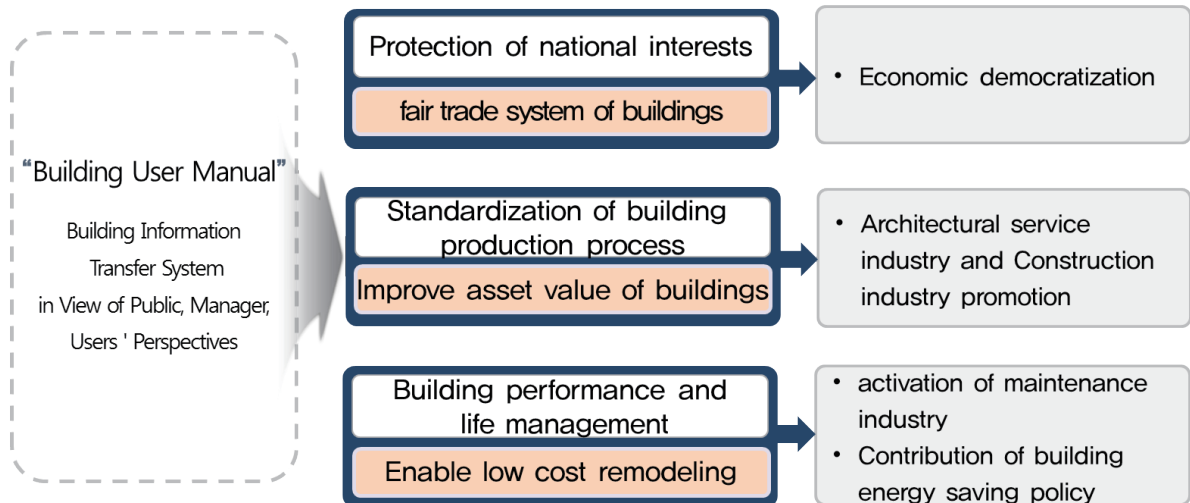
A particular range of important information is suggested for small- and medium-sized buildings.

Since the contents of the information generated in the process of building production can vary, it is important to ensure that relevant information accumulates and continues to be transmitted throughout the final construction stage. Important information about the people involved in the building production process must be reflected in the building's user manual. The contents of the building (e.g., the layout plans, elevation, line plan, floor structure, use type, areas, landscaping, parking plan, etc.) and facility plans (e.g., sewage treatment facility, parking lot, air conditioning, electricity etc.) are directly required and should be reflected in the building's user manual.

Table. Important Information for Multi-family Houses

Classification	Category	Contents
Basic architectural information	Building registry, building history, private spaces, public spaces	Completion of the design book and specifications
Building history	Major repairs, remodeling, etc.	
Finishing materials	Lighting, wallpaper, tiles, other interior finishes (bathroom furniture, windows), outdoor finishes (bricks, fire doors, stair railings, etc.)	Installation locations, product specifications (product code number), replacement method, etc.
Management method	Waterproofing inspection, maintenance, structural inspection, non-proof wall inspection, heating and cooling heat source inspection, hot water facility inspection, common space management, waste management, sewage management, common space management, energy performance management, recording methods, etc.	
How to use	Conservation management, floor management, prevention of frost damage, water meter inspection, etc.	
A S contact	Architects, construction companies, supervisors, subcontractors, city gas, electricity, boilers, hoods, smart systems, etc.	Information about businesses, personal contacts, responsible departments
Attached documents	Maintenance records	

Policy Implications of Introducing Building Use Manuals



The policy implications of introducing the building instruction manual are as follows. First, it will realize economic democratization through the protection of national interests and establishment of fair trade in buildings. Second, it will contribute to the promotion of the architectural service and construction industries through a standardization of the building production process and secure of asset value in small buildings. Finally, it will possibly

contribute to expanding the construction of energy-saving buildings by establishing and revitalizing the maintenance industry through the management of buildings' performances and lifespans as well as by revitalizing low-cost remodeling.

Keywords : Building User Manual, Building Maintenance, Protection of the Rights and Interests of Consumers, Fair Trade Order

