Report on the 18th Japan-France Building Colloquium

November 22, 2004

Overview of the Activities of the Building Center of Japan (with update on building activities and revised building regulations in Japan)

International Department, The Building Center of Japan

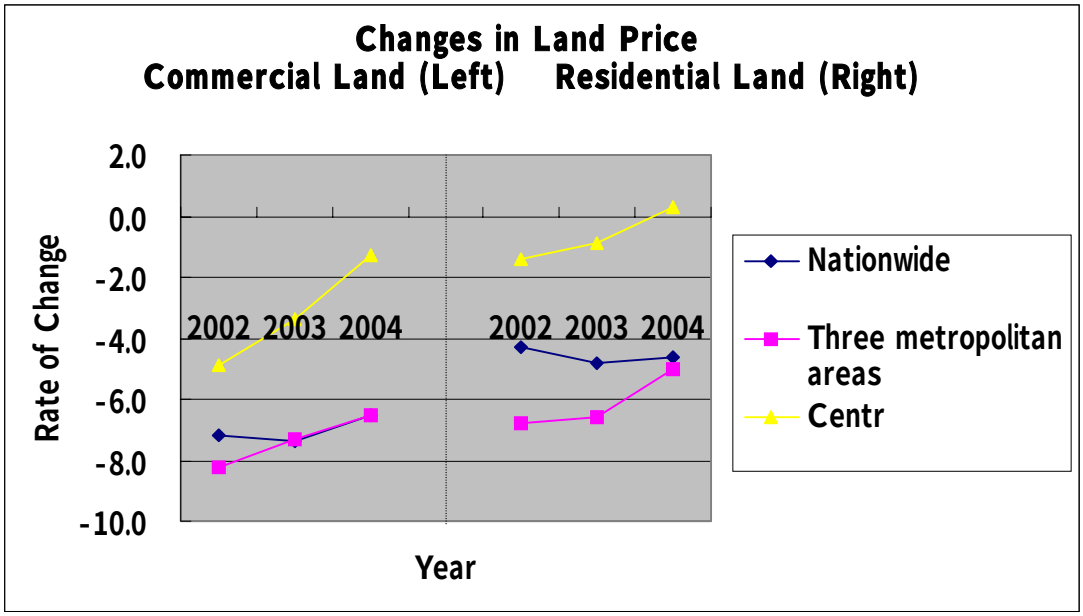
Since its inception in 1965, the Building Center of Japan (BCJ) has been engaged in a wide array of activities including the evaluation of new building technologies, research and development, international exchanges, and the provision of information related to these activities as part of its efforts to innovate building technologies and promote construction activities. In recent years BCJ has added to its traditional portfolio of activities such services as the evaluation and registration of management systems based on ISO, technical evaluation under the Building Standard Law (BSL) and under the Housing Quality Assurance Act (HQAA), building confirmation and inspection, housing performance evaluation as well as its own autonomous technical assessment services and innovative building technology approval services.

Before presenting an update on these BCJ activities, let me begin with the recent developments in building activities and regulations in Japan which form the backdrop of the Center's efforts.

1. Recent Developments in the Japanese Building Sector

1-1 Social and Economic Conditions of Japan

The Japanese economy went through a prolonged period of stagnation and deflation due partly to the enormous burden of bad debts caused by the bursting of the bubble economy. However, with broad structural reforms progressing in industry and government and the recent management reforms in the corporate sector (mainly in the export-oriented industry), we are finally seeing signs of economic recovery, including increasing personal consumption. Real estate prices, which remained stagnant after the bubble economy, have stopped falling in the more convenient locations, and a small increase has been observed in central Tokyo where redevelopment is in full swing. On the other hand, the economy appears to be polarizing: non-export-oriented industries are falling behind in the road to recovery and the downward trend in land prices continues in regional areas; it is still premature to draw a conclusion about the Japanese economy as a whole.



Other major socioeconomic trends in recent years include the rapidly aging population, combined with a declining birthrate, as well as the commencement of full-fledged efforts to address environmental issues.

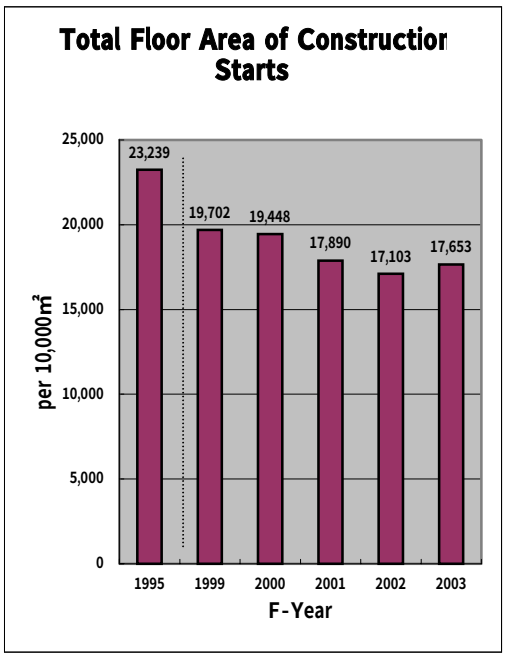
Statistics on the progression of the aging population and declining birth rate (YR2003)
Population of age 65 or older: 19.0% Total fertility rate: 1.29

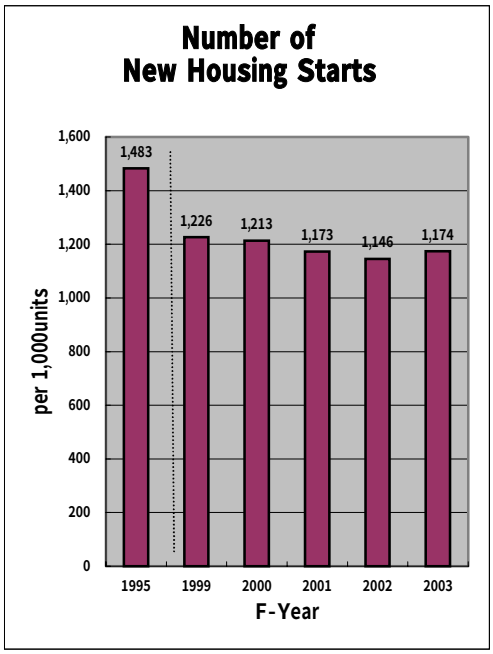
1-2 Building Starts

The total floor area of construction starts and the number of new housing starts have decreased in the past ten years. There was a government program in the 1990s promoting housing construction to stimulate the economy, but the housing starts declined rapidly when the program ended. Last year, however, a small recovery was observed, possibly reflecting the economic turnaround.

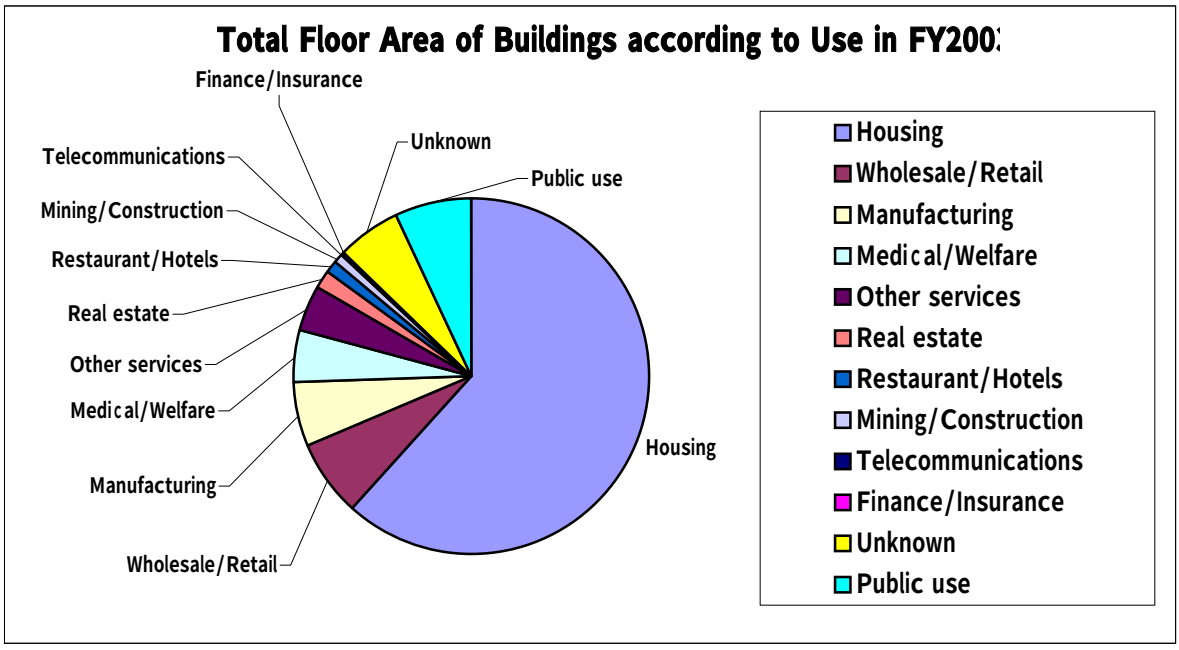
The number of housing units built in FY2003 was 174,000 (108,940,000 square meters in total) representing approximately 60% of the aggregate floor area of all buildings starts (176,530,000 square meters). Of the newly built houses, 32% were for owner-occupiers, 28% for sale, and 39% for rental property.

Of all newly constructed buildings, buildings for residential use occupy the highest percentage, followed by retail, factory, office and warehouse. The pie chart below shows the breakdown of the total floor area of new buildings by use.





Of the 176,530,000 square meters representing the total floor area of all buildings starts, those built mainly by the public sector account for only a little less than 7%, at 12,120,000 square meters; it is clear that most building activity in Japan is initiated by the private sector.



2. Recent Developments in Japanese Building Regulations (BSL)

2.1. Overview of the Building Standard Law (BSL)

The most important and fundamental law related to building regulations is the Building Standard Law (BSL). The BSL sets out uniform technical criteria as the basis for the design and construction of buildings; every building to be constructed in Japan is subject to this law. Municipalities may enact their own bylaws concerning buildings within the authority granted to them under the BSL and other laws.

The BSL consists of building-code, including structural safety, fire safety, plumbing and mechanical systems, and zoning code in addition to general provisions governing procedures and penalties. The zoning code pertains to provisions that specify requirements for buildings in areas subject to urban planning under the City Planning Law, such as the use, building coverage ratio and floor area ratio, and shadow over the adjacent properties specific to each urban district.

2.1.1. Building Confirmation and Inspection (See Annexed Table 1.)

As a rule, building inspection and confirmation procedures based on the BSL are required in order to construct a building or to do a renovations or major repairs on a building in Japan. These procedures allow the government to keep track of and to control building activities and are utilized not only for BSL conformance but also for the verification of conformance with major building-related laws such as the Fire Services Law and the City Planning Law.

Traditionally, public officials were the only people entrusted with such confirmation and inspection services, but with the revision of legislation, independent and impartial private organizations with the necessary review capabilities are now able to provide these services. At present, a total of 95 private-sector organizations (designated confirmation and inspection bodies) throughout Japan conduct confirmation and inspection services under the BSL. These bodies vary in a number of ways, including regional coverage and the types and sizes of buildings covered. The Building Center of Japan has been providing confirmation and inspection services since 1999.

2.1.2. Performance Evaluation (See Annexed Table 2.)

Many requirements in the building-specific provisions of the Building Standard Law, including structural requirements, were changed to fall under performance-based provisions,

including structural requirements, and a certification program has been created under the BSL.

The BSL stipulates required performance for major building parts in structural safety, fire safety, and sanitation. In actual construction, however, it is difficult to determine the legal conformity of the building material or construction method employed solely on the basis of the wording of the law. For these reasons, specifications which are deemed to comply with the law and general verification methods are provided for by regulations or notifications. Designated performance evaluation bodies which are so designated by the Minister of Land, Infrastructure and Transport provide evaluation services for new building materials and buildings which require sophisticated evaluation such as large multi-purpose complexes.

There is an approval system in which the Minister issues approval for a product or a method based on the evaluation results provided by such performance evaluation bodies. Included in the system is the certification of non-combustible and other fire-resistant materials and fire-resistive construction, buildings which are verified for evacuation safety, and the structural integrity of skyscrapers.

Please note that BCJ has been providing evaluation services under the relevant provisions since 2000, when the relevant provisions took effect.

2.1.3. Type Approval System（See Annexed Table 3.）

Some building equipment, such as elevators, escalators and emergency lighting equipment, is mass produced according to identical type specifications. There are also buildings, such as prefabricated houses, that are built using identical construction methods according to standard specifications. Under the new type approval system, these items can be approved in advance, thus simplifying procedures during confirmations and inspections for individual buildings (type approval systems). There is also a system that allows these examination requirements to be substantially reduced for products from a manufacturer which has been certified as having quality control systems above a certain standard (Certification System for Specific-Type Component Manufacturers).

The Building Center of Japan has been operating as a designated approval body for these types of approval and certification procedures since the relevant provisions took effect in June 2000.

2.2. Recent Amendments to the Building Standard Law (BSL)

In the last meeting of the Japan-France Building Colloquium, which was held in November 2002, I presented a paper describing the amended BSL for advancing measures against the sick-house syndrome. In the following year, a technical notification regarding formaldehyde measures was issued, and has been in effect since July 2003. We have scheduled a separate presentation for later today to explain the specifics of the technical criteria and the evaluation methods implemented at that time as well as how the program has been doing since then.

2.2.1. Background of This Year's Amendments Involving Existing Buildings

This year, we have seen the BSL provisions amended regarding the existing building stock, in order to ensure the safety of buildings and for disaster prevention in built-up areas.

The technical criteria provided in the Building Standard Law of Japan have undergone many reviews since it was introduced in 1950. A major revision was made in 1980 to ensure seismic structural safety, thus establishing significantly high earthquake resistance in buildings constructed under the revised seismic standard. This was demonstrated in the comparison of damage made between pre-and-post new seismic-standard buildings in the aftermath of the Great Hanshin-Awaji Earthquake of 1995 in Kobe City and other affected areas.

Presently in Japan, those buildings which were built before the introduction of the new seismic standard account for approximately 30% of the housing stock (approx. 14 million units of a total of approx. 44 million) and approximately 40% of the non-residential building stock (approx. 1.2 million units of a total of approx. 3.4 million).

Most of these buildings are presumed to be existing non-conforming buildings (buildings which were already in existence at the time of a stricter standard and are therefore exempt therefrom). That is why the major aim of this year's BSL amendments is to improve the structural integrity of these buildings. The need for anti-seismic measures is all the more urgent since it is predicted that a multitude of earthquakes of a magnitude greater than 8 could occur in the ocean floor surrounding Japan in the near future.

From the perspective of better utilization of resources, these amendments also aim to promote the renovation of existing buildings, therefore improving safety, so that they will be utilized far into the future.

2.2.2. Particulars of This Year's Amendments Involving Existing Buildings

The amendments are as follows:

(1) Enhancement of safety measures for existing buildings

a. The enhancement and strengthening of reporting and inspection programs concerning buildings, such as increased authority to make unannounced site inspections and tougher penalties.
b. The creation of a program to demand corrective measures for dangerous existing-non-conforming buildings and a penalty scheme for non-compliance with such demands.

(2) Streamlining of the application of the current BSL for any addition or renovation work to existing non-conforming buildings

a. Such buildings may proceed with the necessary repairs or modification work in stages by dividing the entire addition or renovation plans upon obtaining approval thereof. (Under the previous BSL, any addition or renovation work required the owner to simultaneously upgrade the building to the current standard of the time, so consequently, many buildings were left in a dangerous state without any repairs or they were demolished due to the enormity of the costs involved for such repairs.)
b. For the addition or renovation of large buildings, conformance with the current BSL is required only for relevant parts: the area of the building structurally separated by an expansion joint for seismic reinforcement or a part where required compartmentalization has been made due to evacuation provisions. (Previously it was necessary to upgrade the entire building; it was difficult to achieve a consensus among the tenants or to secure necessary funds, so consequently, many buildings were left in a dangerous state without any repairs being made to them.
c. For existing wood houses, small-scale additions or renovations are permitted if a certain level of reinforcement is made to the existing foundations.

In addition, a measure has been introduced to allow major repairs or design changes to existing non-conforming buildings in terms of the zoning codes, such as exterior building design, in order to conform to the above amendments.

2.2.3. Enforcement Schedule

A bill for these amendments to the Building Standard Law was passed in the Diet in June 2004, and the necessary documents such as technical notifications are being drawn up now,

the enforcement of these amendments must begin within one year of the passing of the legislation.

2.3. Overview of the Housing Quality Assurance Act (HQAA)

The Housing Quality Assurance Act was established in 1999. Its purpose is to promote quality assurance in housing and to create a market environment in which consumers will feel confident to purchase housing.

2.3.1. Housing Performance Evaluation under the HQAA（See Annexed Table 4.）

The Housing Performance Indication Standards of Japan, common rules based on objective indicators, specify what should be described in the labeling. This includes structural stability, fire safety, and special attention to senior citizens and others with special needs. There are 29 disclosure items within 9 labeling categories for new houses. Of these, existing housing stock is included in 21 items within 6 labeling categories in addition to the criteria for the present condition of the building in order to show the aging and other aspects specific to the existing housing stock, such as cracks in each part of the building, including exterior walls and the roof.

The methods used to carry out evaluations of design documents and inspections for items requiring disclosure under the Japan Housing Performance Indication Standards are called “Evaluation Method Standards.” Standards have been established for each item under the Indication Standards. New houses are subject to two types of evaluation: evaluation of the design documents (design-stage housing performance evaluation) and on-site inspections during construction and upon completion (construction-stage housing performance evaluation). Evaluation of existing houses is limited to on-site evaluations (construction-stage housing-performance evaluation).

The Minister of Land, Infrastructure and Transport approves designated housing-performance evaluation organizations that are deemed to have the technical background required for housing performance evaluation, and the ability to carry out evaluations fairly and from a neutral stance. To date, 93 organizations have been designated. The Building Center of Japan also carries out evaluations as a designated organization.

2.3.2. Approval System, etc., under the Housing Quality Assurance Act

The approval system based on the Housing Quality Assurance Act is similar to that under

the Building Standard Law.

(1) Certification of Type-Approval Housing Performance and Certification of Specific-type Housing Parts Manufacturers

Performance evaluation procedures for individual houses can be simplified through advance type-approval for houses or parts thereof. If manufacturers of these items are certified as meeting specified quality control standards, assessment procedures for performance evaluation can be simplified for houses or parts thereof of the types covered by such certification.

The Minister designates organizations to carry out approval and certification under these systems. Such organizations are called “designated type-approval housing performance organizations.” The Building Center of Japan has been granted this designation.

(2) Approval of Special Evaluation Methods

Special evaluation methods not covered by the evaluation method standards, such as evaluations for houses built using new and advanced construction methods, and evaluations carried out employing testing methods used in foreign countries, are subject to individual approval (approval of special evaluation methods) by the Minister of Land, Infrastructure and Transport to supplement the approval of evaluation methods.

The Minister approves special evaluation methods on the basis of testing and analysis certificates issued by organizations designated by the Minister (designated testing organizations). The Building Center of Japan has been granted this designation.

2.4. Other Building-related Laws and Regulations

In addition to the Building Standard Law and the Housing Quality Assurance Act, the following laws are related to building regulations in Japan.

2.4.1. The Act Concerning the Rational Use of Energy (1979）

This act requires building owners and related parties to make efforts in the rationalization of energy use. The Japanese government has been providing guidance by issuing the judgment standards for items to be worked on.

2.4.2. The Act on Buildings Accessible and Usable for Elderly and Physically Disabled （1994）

Under this act, measures are implemented to promote the construction of buildings which provide easy access to, and are user friendly for, senior citizens, the physically disabled, and other people who are restricted in physical functions in social or daily activities.

2.4.3. The Scenery Act（2004）

This is a new act, enacted just this year. It provides the basis for the preparation of scenery planning, designation of scenery planning areas, regulations concerning any changes to the form or appearance planned for buildings and landscaping in scenic areas, and any other measures necessary for the creation of quality scenery in cities and regional communities.

3. Recent Activities by the Building Center of Japan

The Building Center of Japan has its headquarters and Building Technology Research Institute in Tokyo and an office in Osaka. BCJ has 128 workers, including the president (as of April 1, 2004) and an operating budget of approximately 2.8 billion yen for this fiscal year.

BCJ activities are divided into four major areas: evaluation, research and development, information services, and international activities.

3.1. Evaluation Activities

The Building Center of Japan provides technical evaluation services for buildings including evaluation activities under the BSL and HQAA as well as evaluation activities conducted as BCJ's autonomous assessments. BCJ also provides assessments and registration services under ISO 9001 (quality management systems) and ISO 14001 (environmental management systems) standards for companies in the construction and civil engineering fields. Further comments about the evaluation services are as follows:

Prior to the revision of the law in 1998, the Building Standard Law was basically prescriptive, so it was therefore necessary to apply for approval from the Ministry of Construction for each new material or construction method to be used. The Building Center of Japan was formerly an agency that performed the technical evaluations required in advance of such ministerial approval. Thanks to our work record from those days, it is recognized today among the many designated evaluation and approval organizations under the revised BSL as an organization of the highest level in the technical evaluation of buildings. Building-related industries, research institutions, government and municipal offices, have

great trust in the reliability of BCJ. Capitalizing on its technical expertise, BCJ is developing its technical evaluation division, focusing on buildings that use construction methods or materials which are particularly uncommon, as well as high-rise buildings which require technical evaluation.

3.1.1. Activities under the Building Standard Law

Confirmation and inspections	FY2002	Building (including changes)	Confirmations	654
	FY2003	Building (including changes)	Confirmations	1,102

Performance evaluations	FY2002	Applications filed	601
	FY2003	Applications filed	669
Type approval	FY2002	Applications filed	1,873
	FY2003	Applications filed	2,190
Certification of specific-type component manufacturers	FY2002	Applications filed	1,168
	FY2003	Applications filed	1,753

3.1.2. Activities under the Housing Quality Assurance Act

Housing performance evaluations	FY2002	Design evaluations	38 (4,167 units)	Construction-stage evaluations	9 (828 units)
	FY2003	Design evaluations	41 (4,605 units)	Construction-stage evaluations	33 (3,110 units)

Housing performance type approval	FY2002	Applications filed	3,164
	FY2003	Applications filed	2,759
Certification of specific-type housing parts manufacturers	FY2002	Applications filed	2,954
	FY2003	Applications filed	2,028
Testing for special evaluation method approval	FY2002	Applications filed	35
	FY2003	Applications filed	50

3.1.3. Autonomous Technical Assessment Services

(1) Technical Appraisals

The Building Center of Japan provides technical appraisals other than those carried out under the relevant laws. These include assessments of building disaster prevention plans and structural design. It has provided this service since before the Building Standard Law was amended in 1998. (Applications filed in fiscal 2003: 333)

(2) Approval of innovative Building Technologies (BCJ Agrément Services)

Since 1999 the Building Center of Japan has provided new building technology approval services (BCJ Agrément Services) for innovative building technologies that are not covered by the Building Standard Law, Japanese Industrial Standards, Japanese Agricultural Standards or other codes and standards. BCJ sets its own approval criteria for the types of technology that will fulfill social needs in relation to such factors as the reduction of environmental loads. When an application is received, BCJ assesses the technology in question to determine whether or not it meets the approval criteria. The aim of this quality approval system for technology is to facilitate the development and dissemination of new building technologies and to promote quality in construction.

Approval criteria have been developed for ① recycled aggregate for structural concrete used in buildings, ② sound-insulation floor finish construction, ③ recycled forms for concrete work, ④ recycled organic building products, ⑤ building materials which reduce contamination of indoor air caused by VOCs, ⑥ heat insulating material which are not ignited easily, ⑦ technology for furthering rooftop greening, ⑧ non-flon(CFCs) insulator, and ⑨ technology for dismantling incineration plants.

A more detailed description of the BCJ Agrément Services will be given separately during this meeting.

(3) Review and Certification of Construction Technology

Through its construction technology review and certification service, the Building Center of Japan aims to promote the immediate and appropriate use of new technology resulting from private-sector research and development activities in the construction business, and to contribute to the improvement of construction technology. New technology is reviewed by BCJ to ascertain whether or not it meets the development targets set by the applicant.

3.2. Research and Developments

The Building Center of Japan undertakes wide-ranging surveys and research under contract with public and private organizations. It also carries out joint research projects and independent research activities. Fields covered include building technology, urban development and housing policies.

3.3. Information Services

The Building Center of Japan responds promptly to code and standard changes and to the development of new technology by distributing information through seminars and various media, including the internet, and publications. The aim of this activity is to facilitate the dissemination of new building requirements and technologies.

Last June marked the publication of the English translation of the Fifth Edition of the Building Standard Law, under the auspices of the relevant departments of the Ministry of Land, Infrastructure and Transport.

3.4. International Activities

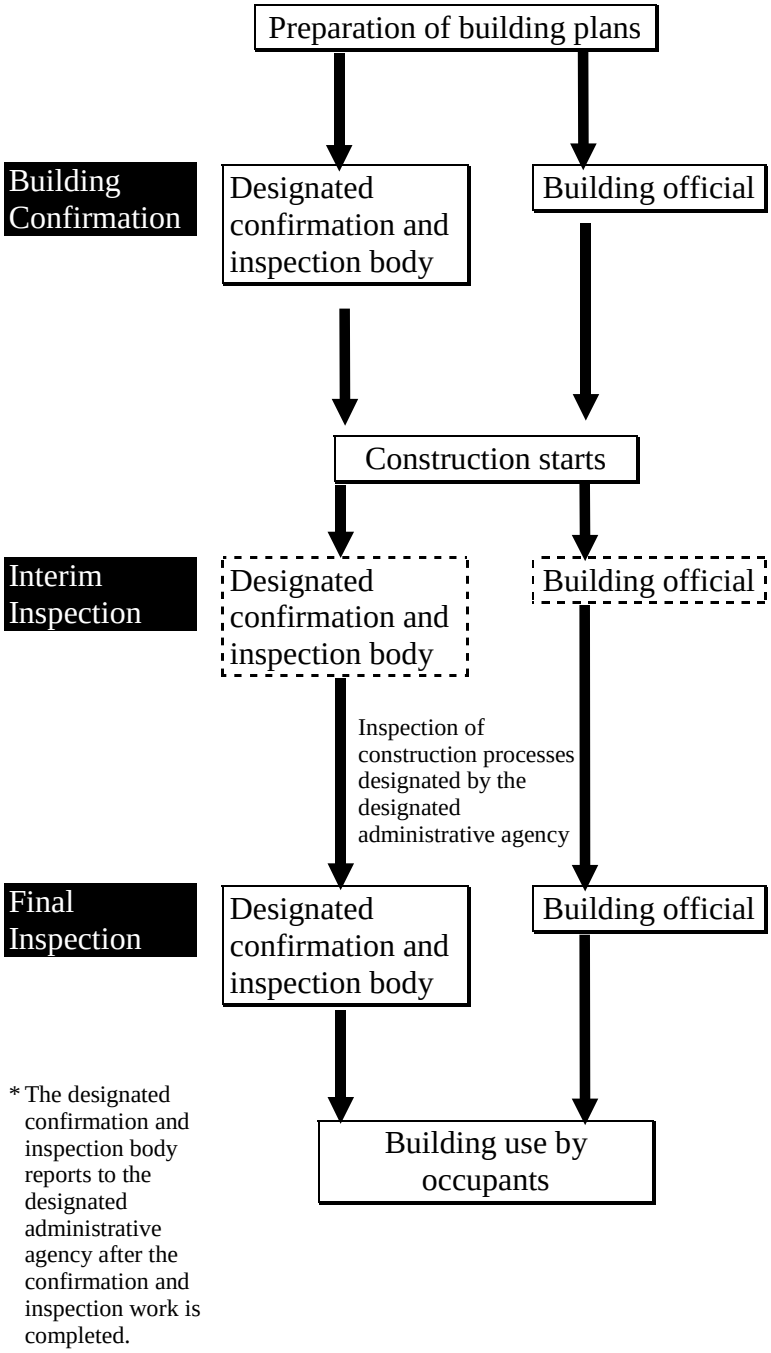
As Japan's leading technical evaluation organization in the field of building technology evaluation, the Building Center of Japan participates in international exchange activities under reciprocal agreements with six overseas evaluation organizations: the Centre Scientifique et Technique du Bâtiment (CSTB, France), the International Code Council Evaluation Service (ICC-ES, United States of America), the Canadian Construction Materials Center (CCMC, Canada), the Australian Building Codes Board (ABCB, Australia), the Building Research Association of New Zealand (BRANZ, New Zealand), and the British Board of Agrément (BBA, United Kingdom). The Center also participates in the activities of the World Federation of Technical Assessment Organizations (WFTAO).

Furthermore, BCJ organizes conferences, such as this Colloquium and the Japan-China Building Center Conference which is next month. Besides conducting meetings with several other countries, other activities include the English translation of documents related to both technical evaluations and housing, the distribution of information about building and housing in Japan by newsletters through the Internet and other media.

The Building Center of Japan also undertakes international cooperation activities. These include the provision of technology and training programs in developing countries.

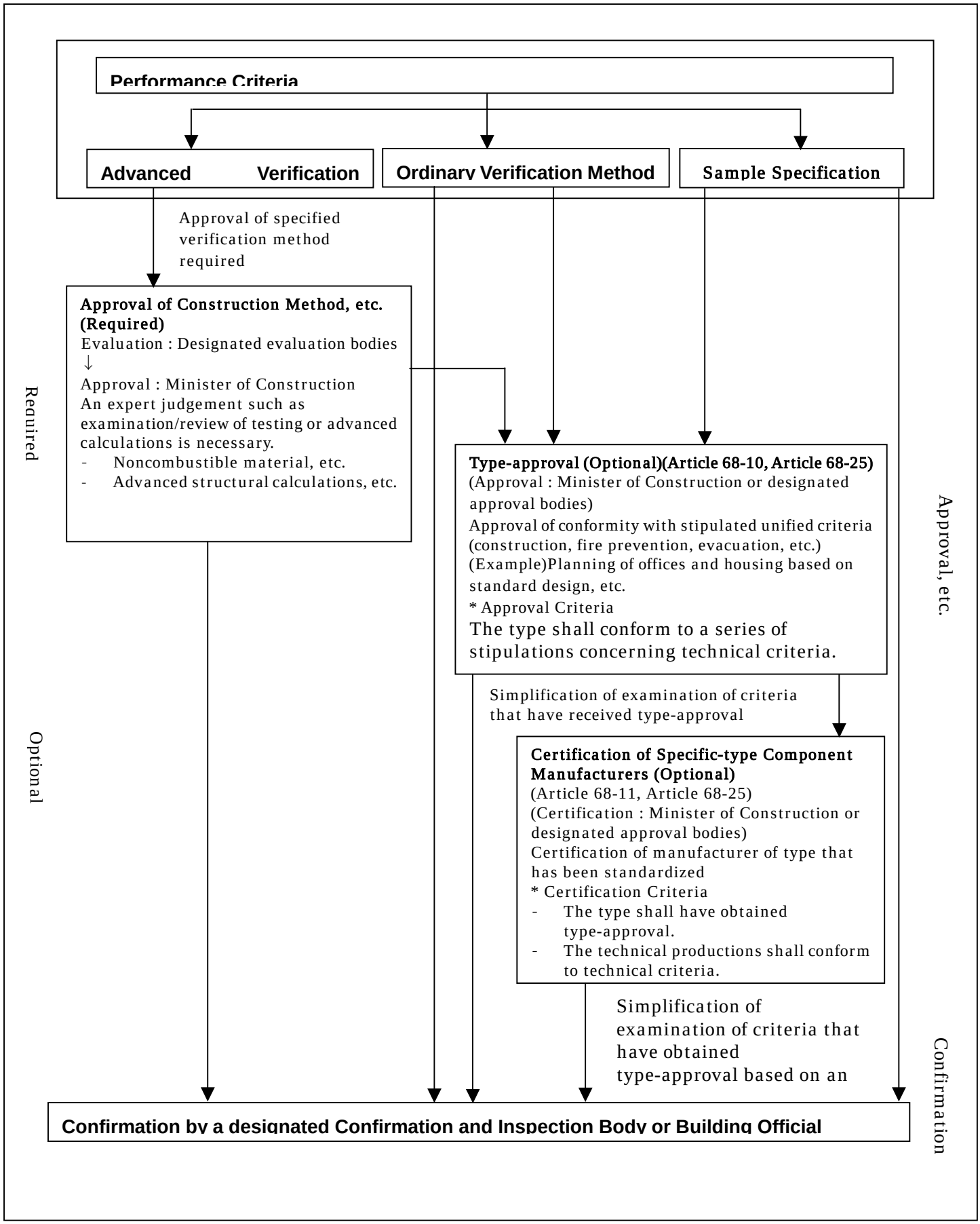
Annexed Table 1

Flow of Building Confirmation and Inspection Procedures based on the Building Standard Law



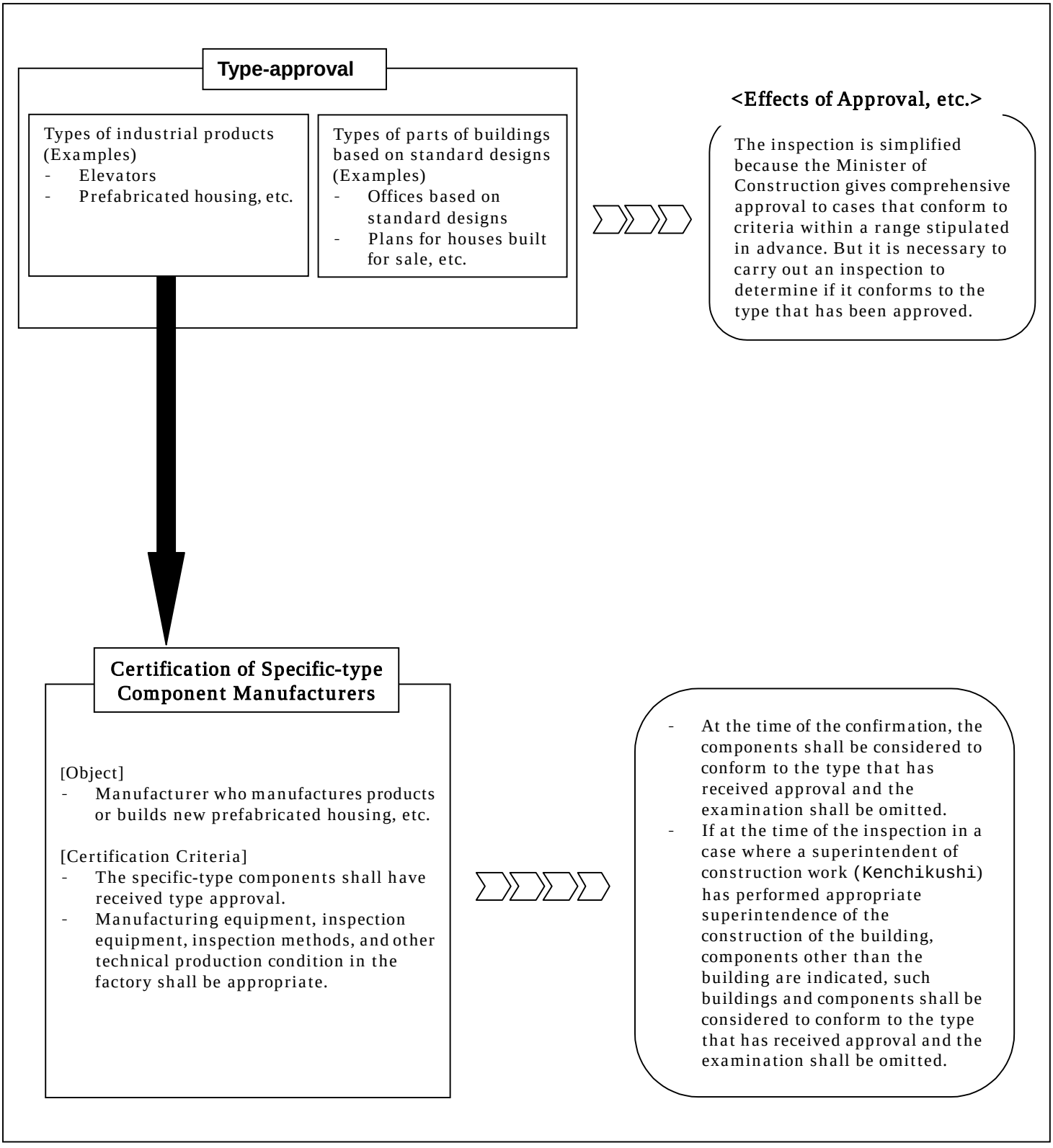
* The designated confirmation and inspection body reports to the designated administrative agency after the confirmation and inspection work is completed.

Annexed Table 2 Approval/Certification Procedures based on the Building Standard Law



Annexed Table 3

Relationship between Type Approval and Certification of Specific-type Component Manufacturers



Annexed Table 4

Procedure of Housing Performance Indication System