Building Control in Japan

- Part C -

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Chapter 5 Basic Legal Documents and Technical Documents in Japan

Means of ‘Basic Legal Document‘ and ‘Technical Document’ are shown in Part A.

Basic Legal Documents in Japan

CPL (City Planning Law) and BSL (Building Standard Law) are basic legal documents for building control in Japan. CPL and BSL stipulate necessary provisions for each group of technical requirements as shown below.

It is the characteristic of Japan that BSL provides building confirmation system and countermeasures, and ensures compliance of both Group A and Group B. In the other words, in the building confirmation process, not only Group B but also Group B are examined through the documents attached to the application.

	Technical Requirements		
	Group A (safety and amenity)	Group B (city plan)	Group C (infrastructure)
How to determine city plan	-	CPL	-
To require buildings to comply with technical requirements	BSL requires buildings to comply with technical requirements.		CPL requires land-development activities to comply with technical requirements.
Official procedure, such as building permission	BSL provides building confirmation system similar with building permission system in other countries.		CPL provides land-development permission system.
Countermeasures against violation	BSL provides countermeasures.		CPL provides countermeasures.

* FSL (Fire Service Law) is also Basic Legal Document only for fire extinguishing equipment, etc.

Technical Documents in Japan

Technical requirements of each group are provided in the documents as shown below.

	Group of Technical Requirements		
	Group A (safety and amenity)	Group B (city plan)	Group C (infrastructure)
Documents providing technical requirements	BSL and other related laws (See next page.)	CPL and BSL	CPL and BSL

It is the characteristic of Japan that technical requirements of Group A are provided in not only BSL but also other various Law. Details are as shown below. In the building confirmation process, these all mandatory requirements are examined through the documents attached to the application.

Items of technical requirements of Group A		Technical Documents providing technical requirements
Fire safety	Fire extinguishing equipment, etc.	Fire Service Law
	Fire- resistance, evacuation, etc.	Building Standard Law
Structural safety		
Hygienic safety		
Accessibility of Handicapped people		Barrier-free Law
Energy saving		Energy Saving Law

Chapter 6 Building Standard Law

BSL (Building Standard Law) and its related documents

As mentioned above, BSL (Building Standard Law) and documents which are issued under the Law have a dual role of:

- Basic Legal Document, and
- Technical Documents.

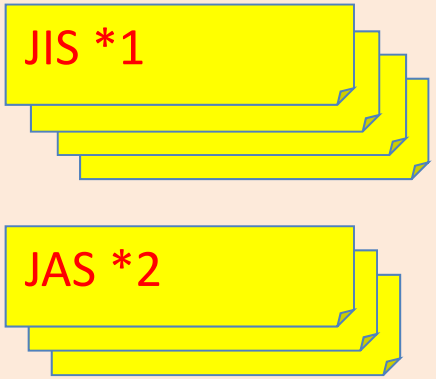
Outline of roles of these documents is as shown below.
Central Government is responsible for No.1, 2, 3, 4 and 5, while local authorities are responsible for No.6.

Documents	Person to determine	Contents
No.1 (BSL) Building Standard Law	National Congress (One document)	(1) Stipulating provisions of legal bases for building control, such as: - 'buildings must be in compliance with building requirements', - 'building permit is needed before starting construction work', and - 'local authority has a power to order corrective action to the owner of the illegal building'. (2) Providing basic technical requirements of various fields of Group A and Group B.

(Continued)

Documents	Person to determine	Contents
No.2 Cabinet Order for Enforcement of BSL	National Cabinet (One document)	Providing details of technical requirements of various fields based on the basic technical requirements stated in BSL.
No.3 Enforcement regulation of BSL	Ministry of Land, Infrastructure, Transport and Tourism (Two documents)	Providing administrative items, such as application form, etc.
No.4 Ministerial Notification	Minister of Land, Infrastructure, Transport and Tourism (219 documents as of 2014)	Providing details of building requirements of various fields based on the building requirements stated in BSL or Cabinet Order.

(Continued)

Documents	Person to determine	contents
No.5 	Ministry of Economy, Trade and Industry, and Minister of Agriculture, Forestry and Fisheries (many documents)	Providing various standards stipulating: - Categorization of materials, - Testing methods, - Etc. <Remark> JIS and JAS are not mandatory standard themselves. When BSL or its related documents designate them, they become mandatory standards.
No.6 	Local congresses of prefectures and municipalities (Around 400 in total)	Providing additional technical requirements, which are needed from the viewpoints of regional conditions.

*1: JIS (Japanese Industrial Standard) *2: JAS (Japanese Agricultural Standard)

Chapter 7 Laws Related to Building Standard Law

This chapter introduces:

- Fire Service Law,
- Barrier-free Law, and
- Kenchikushi Law (Qualification System of Architects and Engineers)

City Planning Law is introduced in Chapter 15 of Part E.

Fire Service Law

The purpose of the Fire Service Law is:

(a) to prevent, detect and extinguish fires, and to protect people's lives, health, and property from fires; and

(b) to minimize damage caused by fires, earthquake**s**, and other disasters.

The Law requires that certain buildings be equipped with:

- warning equipment,
- fire extinguishing equipment, such as automatic sprinkler systems, and
- others.

Requirements provided by the Fire Service Law are checked by fire departments of local governments in the process of building confirmation.

Barrier-free Law

The Barrier-free Law has some provisions relating to the building regulations as below.

(a) Requirements of the standard

When undertaking certain types of construction work of a special specified building*1 with a total floor area of 2,000 m2 or more, accessibility and mobility standards*3 must be complied with. These requirements are checked in the process of building administrations.

(b) Promotion of conformance to the standard

Building owners undertaking certain types of construction work of a specified building*2 must make efforts to comply with accessibility and mobility standards*3.

*1. Special specified buildings are any specified buildings*2 used by many, and unspecified persons, or those used primarily by the elderly or physically disabled. Examples are hospitals, theaters, assembly halls, department stores, hotels, and homes for the aged.

*2. Specified buildings are buildings used by many people, such as schools, hospitals, theaters, assembly halls, department stores, hotels, offices, apartments, and factories.

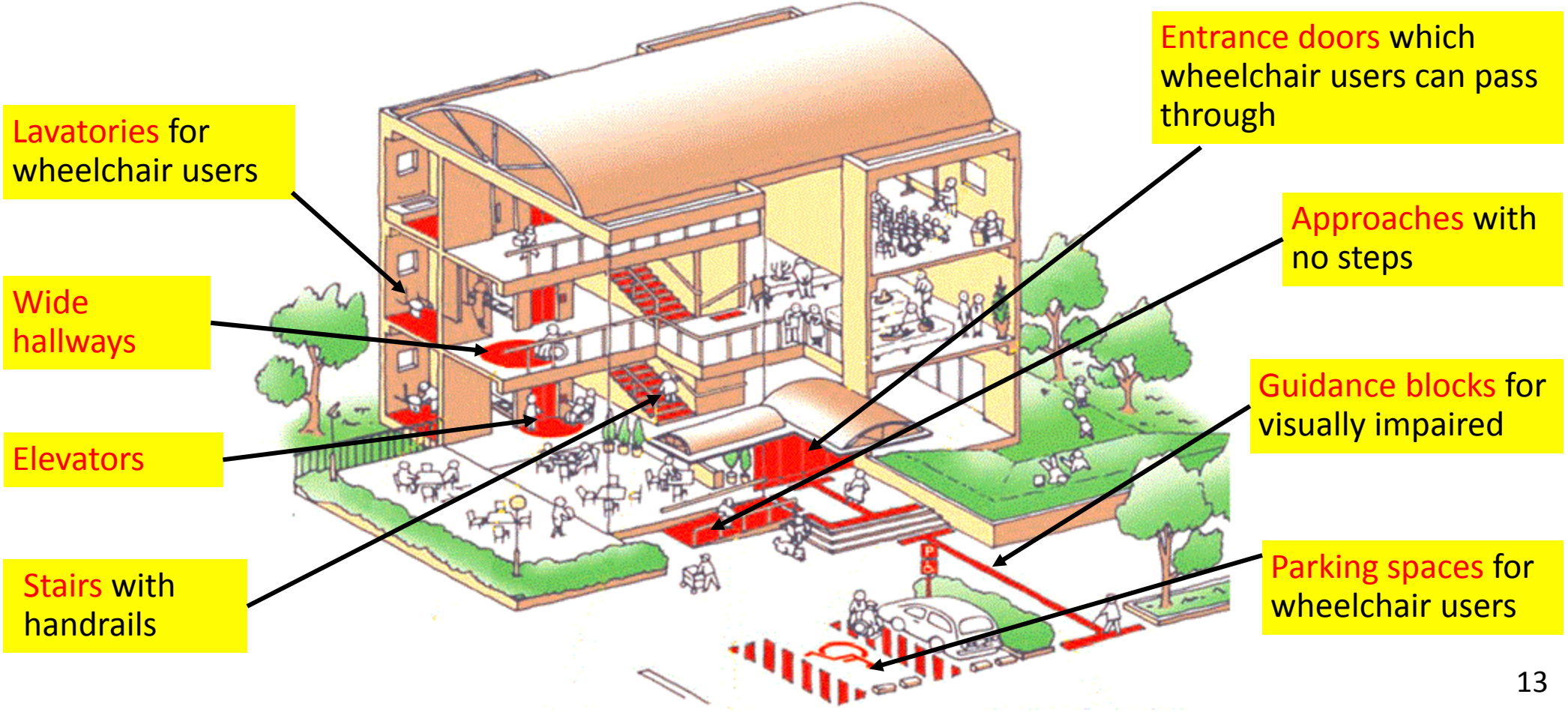
*3. Examples of accessibility and mobility standards are:

- the securing of a hallway wide enough to allow for a wheelchair user and a passer by; and
- installation of at least one commode designed for wheelchair users.

Accessibility and Mobility Standards of Buildings

In Japan, when someone intends to construct buildings, such as hospitals, theaters, assembly halls, department stores, hotels, and homes for the aged, with a total floor area of 2,000 m^2 or more, the buildings must be designed in accordance with the accessibility and mobility standards.

Figure below shows the points of the standards. Number, width, length, etc. of each equipment are stipulated in the standards.



Kenchikushi Law (Qualification System of Architects and Engineers)

The *Kenchikushi* system is a national qualification system under the *Kenchikushi* Law.
Kenchikushi are licensed:

- to **design** buildings (see (1)); and
- to **conduct construction administration** (see (2)).

The *Kenchikushi* system has a linkage with building regulations to ensure the safety of the buildings.

(1) To design buildings

To **design** buildings includes both;

- the role of architect, such as making architectural drawings and specifications, and
- the role of building engineer, such as performing structural calculations, and MEP (mechanical, electrical, and plumbing) system design.

Thus, *Kenchikushi* have the dual role of architect and building engineer, while many countries have separate licensing systems for architects and building engineers.

(2) To conduct construction administration

Check of construction works is done by both an owner's party and a builder's party in Japan. Their responsibilities are shown as below.

(a) A builder's superintendent is an employee of the builder and is responsible for overseeing building construction on behalf of the builder to enssure good quality.

(b) A person who **conducts construction administration** is responsible for examining building construction on behalf of the building owner, to determine whether or not the said construction follows the drawings/specifications made by a *Kenchikushi*.

In Japan, builders are allowed to engage in construction of buildings that they themselves have designed. Actually, many buildings (especially small buildings, such as detached houses) are constructed by the same company that designed the buildings. In almost all of these cases, Person who conduct construction administration are assigned from these companies.

(3) License and Scope of Activity by Type of *Kenchikushi*

The qualifications of *Kenchikushi* are classified into three types:

(a) *1st-class Kenchikushi*;

(b) *2nd-class Kenchikushi*; and

(c) *Mokuzo* (wooden structures) *Kenchikushi.*

In principle, a person who:

- has necessary educational background and job experience of architecture; and
- passed the official examination;

can be registered to:

- the Minister for *1st-class Kenchikushi* ; *and*
- *Prefectural Governors* for *2nd-class Kenchikushi* and *Mokuzo Kenchikushi.*

The *Kenchikushi* Law stipulates the use, structure, height, etc. of buildings, that only *Kenchikushi* may **design** and **conducts construction administration** as shown in the next page.

Scope of Activity by Type of *Kenchikushi*

<table>
<tr><th colspan="2" rowspan="3">Height and structure
Total floor area
(S: m2）</th><th colspan="5">height of building ≦ 13 m and
Height of eave ≦ 9 m</th><th rowspan="3">Height of building＞13 m, or Height of eave＞ 9 m</th></tr>
<tr><th colspan="3">wooden</th><th colspan="2">Non-wooden</th></tr>
<tr><th>1 story</th><th>2 story</th><th>3 story</th><th>Up to 2 stories</th><th>3 stories or more</th></tr>
<tr><td colspan="2">S ≦ 30</td><td colspan="3" rowspan="2">Anyone can engage in this.</td><td>Anyone</td><td rowspan="2"></td><td rowspan="3"></td></tr>
<tr><td colspan="2">30 ＜ S ≦100</td><td rowspan="2">1st, 2nd, or Mokuzo may engage in this.</td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td colspan="2">100 ＜ S ≦ 300</td><td rowspan="2"></td></tr>
<tr><td colspan="2">300 ＜ S ≦ 500</td><td colspan="3" rowspan="2">Only 1st–class or 2nd-class may engage in this.</td><td rowspan="2"></td></tr>
<tr><td rowspan="2">500 ＜S ≦ 1,000</td><td>General-purpose buildings</td><td rowspan="3"></td></tr>
<tr><td>Special-purpose buildings</td><td colspan="3" rowspan="3">Only 1st-class may engage in this.</td></tr>
<tr><td rowspan="2">1,000 ＜ S</td><td>General-purpose buildings</td><td>1st, 2nd</td></tr>
<tr><td>Special-purpose buildings</td><td colspan="4"></td></tr>
</table>

Note: *Special-purpose buildings* refer to schools, hospitals, theaters, cinemas, grandstands, public halls, assembly halls with auditoriums, and department stores.

(4) *Structural Design 1st-class Kenchikushi and MEP Design 1st-class Kenchikushi*

In principle, a person who:

- engaged in the services of structural design (MEP design) for five years or more as a *1st-class Kenchikushi*; and
- completed the designated training program;

may apply for issuance of a *Structural Design 1st-class Kenchikushi (MEP Design 1st-class Kenchikushi*).

(a) *Structural Design 1st-class Kenchikushi*

In the case of buildings over a certain size (*1), either of the following is required:

(i) A *Structural Design 1st-class Kenchikushi* designs the building, and also examines that the building meets the relevant codes and standards for building structures.

(ii) A *1st-class Kenchikushi* designs the building, and a *Structural Design 1st-class Kenchikushi* examines that the building design meets the relevant codes and standards for building structures.

(*1) - Steel buildings with 4 or more stories (excluding basement);
- RC or SRC buildings of 2 0m or more in height:
- Wooden buildings with building height of more than 13 m or eave height of more than 9 m; and
- Buildings stipulated by the Cabinet Order.

(b) *MEP Design 1st-class Kenchikushi*

In the case of buildings larger than 5,000 m2 with more than 3 stories, either of the following is required:

(i) A *MEP Design 1st-class Kenchikushi* designs the building, and also examines that the building meets the relevant codes and standards for building equipment.

(ii) A *1st-class Kenchikushi* designs the building, and a *MEP Design 1st-class Kenchikushi* examines that the building design meets the relevant codes and standards for building equipment.

Chapter 8 Building Regulatory System based on Building Standard Law

In this chapter, following items are introduced.

- Legislation
- Administration by the National Government
- Administration by local governments
- Regulatory procedures
- Countermeasures against violation
- Declaration of dissatisfaction

Legislation

(1) Legislation by the Central Government

The Central Government legislates for building regulations based on the BSL in Japan. The building regulatory systems and building codes (technical requirements) are basically common all over the country. And its administration is carried out by local governments as stipulated by the BSL.

(2) Legislation by local governments

On the other hand, regional conditions, such as climate and earthquake risk, are different among regions. Therefore, local governments are entrusted to determine some items, such as:

(a) Figures used for structural calculation, such as snow accumulation, wind pressure and seismic force;

(b) Specific zones where restrictions on external finishes are placed in order to prevent buildings from catching fire;

(c) Specific process of construction work, for which interim inspections are needed.

And local governments may, within specific limits and within the scope of not disrupting the safety of buildings, set more severe or more relaxed regulations than the standard applied throughout the country.

Administration by the National Government (The Minister)

Based on the BSL, the power and commission of the Minister includes:

(a) submissions of proposals to the Japanese Diet for amendments to the BSL;

(b) submissions of proposals to the Cabinet for amendments to the Enforcement Order;

(c) issuance of (i) The *Enforcement Regulation of MLIT*, (ii) The *Ministerial Order Concerning Designated Qualifying Examination Body and Others*, and (iii) *MLIT Notifications*;

(d) conducting qualifying examinations for *Building Regulation Conformity Inspectors*, and the registration of qualified people;

(e) Designating (i) *Confirmation and Inspection Bodies, (ii) Performance Evaluation Bodies, (iii) Approval Bodies,* and (iv) Others.

(*Confirmation and Inspection Bodies* whose scope of work is limited within a specific prefecture are designated by the prefectural governors.)

(f) giving the necessary orders to the designated bodies mentioned in (e);

(g) approving building materials, building components and building designs that meet performance criteria, but do not satisfy sample specification, prescriptive requirements nor *Ordinary Verification Methods*; and

(h) others.

Administration by local governments

As of Apr. 2012,

(a) 227 basic local governments of 1,742 basic local governments, including major cities, conduct building control administration for all buildings regardless of their sizes.

(b) 174 basic local governments of 1,742 basic local governments, including 23 wards in Tokyo, conduct building control administration for limited sized buildings.

(c) 47 prefectures conduct building control administration for buildings, which are not administrated by (a) or (b) .

The responsible agency of each area is as shown in the next page.

448 local governments ((a)+(b)+(c)) are called a Designated Administrative Agency. Building officials under the *Designated Administrative Agencies* are in charge of:

(i) building confirmation; and

(ii) on-site inspections.

Designated Administrative Agencies are in charge of:

(iii) receipt of reports of periodic inspections; and

(iv) measures against violations.

Designated Administrative Agency in response to the area and the building

Area \ Building	(1) **Large buildings** (Buildings other than (2))	(2) **Small buildings**, such as detached houses of not more than two stories.
(a) Areas of 227 basic local governments They are major cities in Japan, and their mayors are *Designated Administrative Agencies*. Most of them have a population of more than 100,000.	**Basic local governments** are in charge of building control.	
(b) Areas of 174 basic local governments Most of them are small cities, and their mayors are *Designated Administrative Agencies*. They are in charge of building control of small buildings only.	**Prefectural governments** are in charge of building control.	**Basic local governments** are in charge of building control.
(c) Other areas Area of around 1,300 basic local governments in Japan. Most towns and villages are included.	**Prefectural governments** are in charge of building control.	

Number of local governments is as of April 2011. 23 wards in Tokyo are categorized in (b), however they are responsible for larger buildings than those stated in this table.

(Reference) Role of Central Government and Local Governments comparing several countries

<table>
<tr><th>Country</th><th colspan="2">Japan</th><th>England</th><th>Australia</th><th>Canada</th><th>USA</th></tr>
<tr><td>Legislation of building regulatory systems
system of permission, inspection, etc.</td><td colspan="3">Central Government
Supplementary provisions by local governments</td><td colspan="3">States and local jurisdictions</td></tr>
<tr><td>Issuance of building codes
technical requirements</td><td colspan="3">Central Government
Supplementary or additional provisions by local governments</td><td colspan="3">States and local jurisdictions
Each country has model building code.</td></tr>
<tr><td>Administration
issuance of building permission, etc.</td><td colspan="4">Local jurisdictions
and
Designated/approved/registered private bodies</td><td>States or local jurisdictions</td></tr>
<tr><td>Judgment of alternative solution
Alternative solution of materials, construction methods, and building design</td><td colspan="2">Minister
Evaluation by one of the Evaluation Bodies is required prior to Ministerial approval.</td><td colspan="2">Local jurisdictions
and
Private bodies
Assessment, such as evidence and evaluation reports, can be used for the judgment.</td><td>States or local jurisdictions</td></tr>
</table>

(Reference) Administrative bodies in Japan

Before 1999, building control administration was done only by the Government (Central and Local) in Japan.

- Designated Performance Evaluation Bodies(from 2000), and

- Designated Structural Calculation Review Bodies (from 2007)

Judgment for structural safety of large buildings, etc.
In case that the building is large or designed with special methods, assessment by these organizations is required.

Central Government

Formulation of Technical Requirements
(1) Central Government issues a set of technical requirements.
(2) Local Governments issues supplementary provisions regarding local situations, such as snowfall, wind pressure, and other local risks.

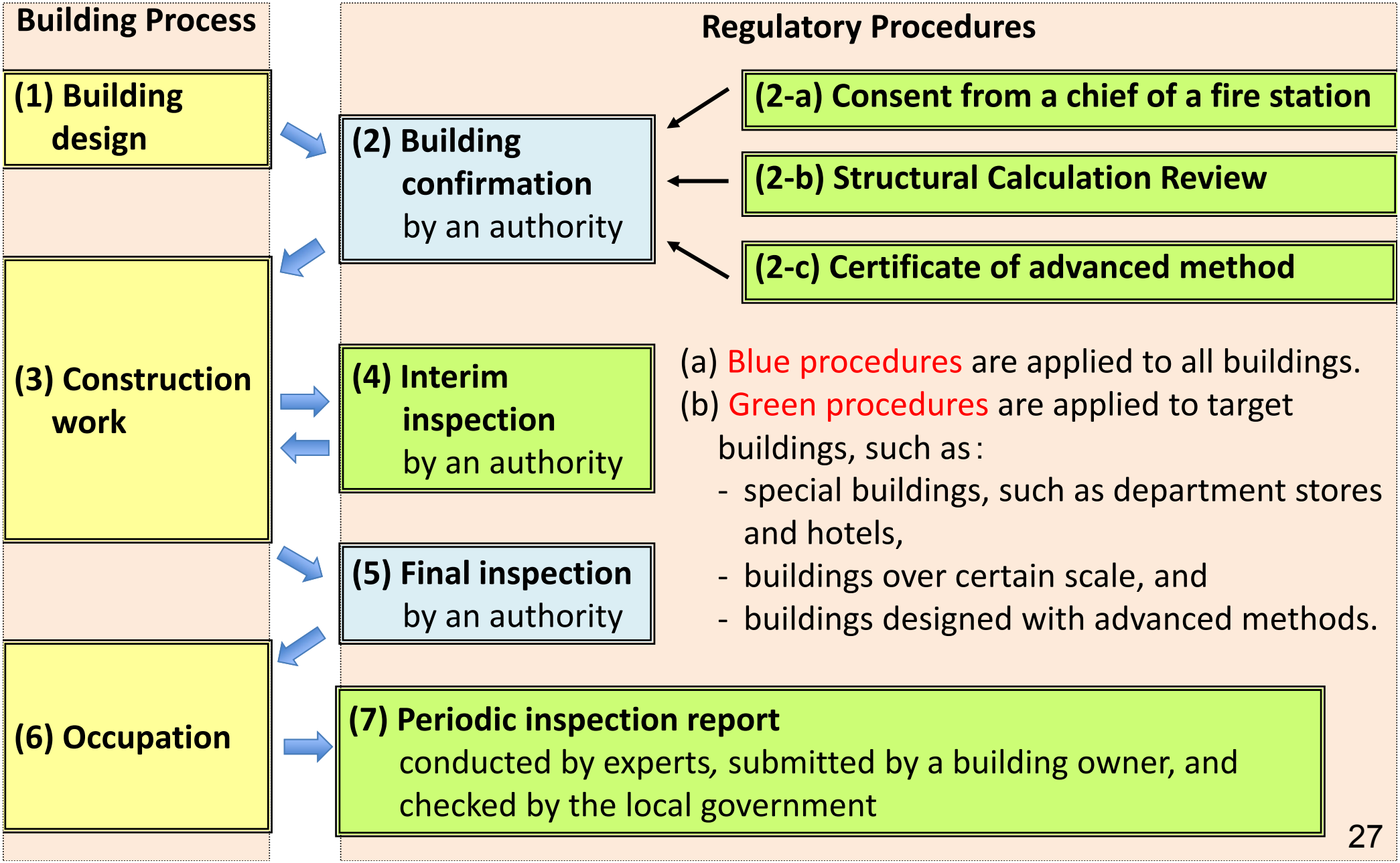
Local Governments

Building Confirmation (similar with building permission in other countries.)
Building owners may choose the issuing organization from one Local Government and some Designated Conformation and Inspection Bodies. * Zoning Code is also examined together with Building Code.

Countermeasures against violation
Local Governments are responsible.

Designated Confirmation and Inspection Bodies (from 1999)

Regulatory Procedures



(1) Building Design

(a) The *Kenchikushi* Law stipulates that only *Kenchikushi* may perform building design, except for small buildings.
(b) The BSL stipulates that anybody must not implement building construction work unless its drawings are made by *Kenchikushi*, except for small buildings.

<Remark>
"*Kenchikushi*" is a licensed person who are allowed to engage in:
- building design, and/or
- Inspection of building construction works.

Qualification system of *Kenchikushi* is mentioned later.

(2) Building Confirmation (similar with building permission)

In principle, in cases where a building is to be:

- constructed,
- extended,
- rebuilt or
- relocated,

a building owner must apply for and receive “building confirmation” from:

- a qualified building official under the local government; or
- one of the *Designated Confirmation and Inspection Bodies* (see the next page),

which confirms that the plan of the building meets technical regulations based on the laws (not limited to BSL) .

Designated Confirmation and Inspection Body

(a) The designation is done by the Minister or prefectural governors. This system was introduced in 1999.

(b) The *Bodies* conduct:

(i) building confirmation; and

(ii) on-site inspection;

Their works are performed by conformity inspectors who have passed the qualifying examination of *Qualified Building Regulation Conformity Inspectors* (mentioned later).

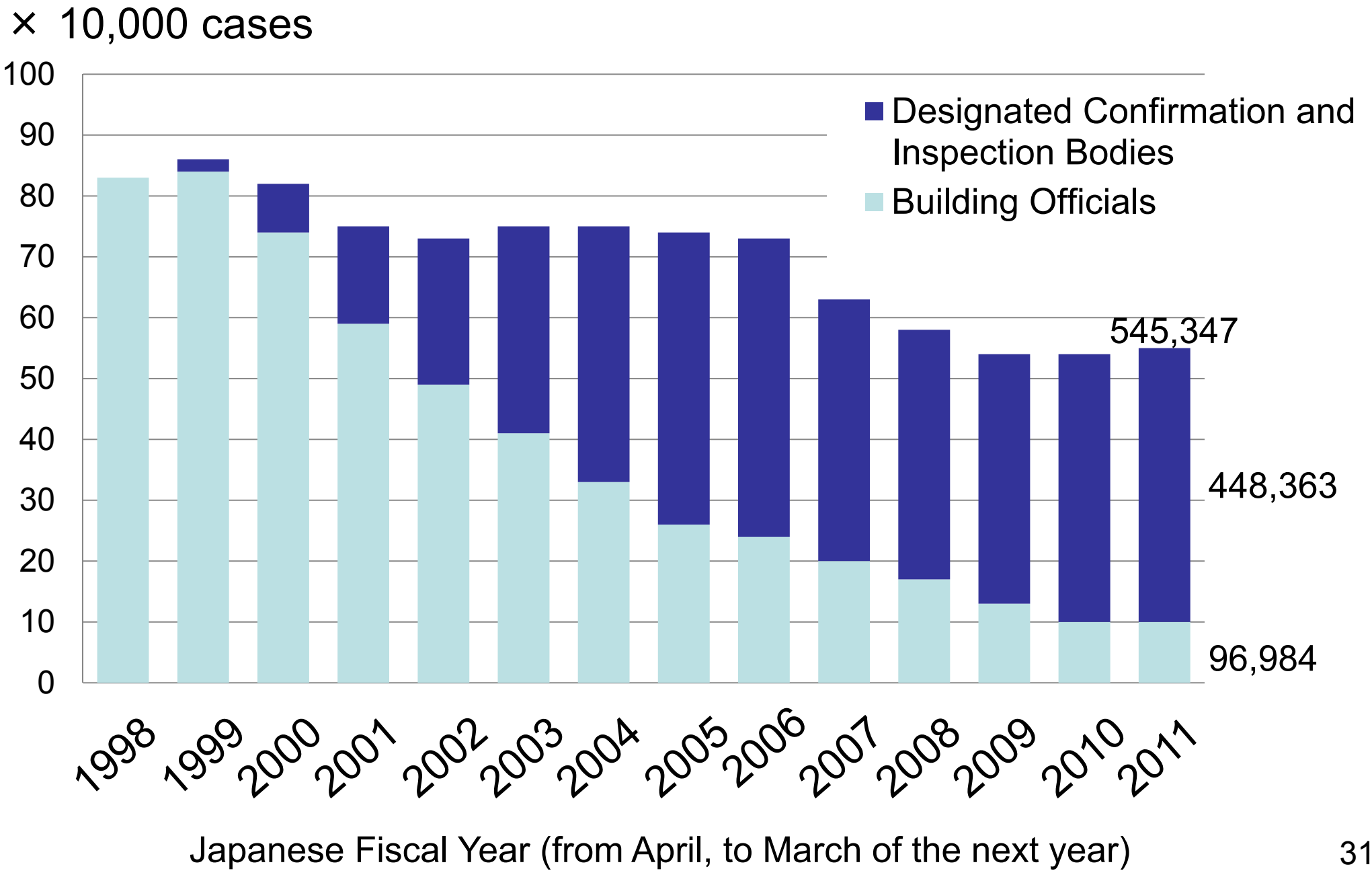
(c) On the other hand, qualified building officials under local governments are also in charge of (i) and (ii) above. The effectiveness of the certificate issued by a *Designated Confirmation and Inspection Body* is the same as that issued by a qualified building official under the local government.

Achievement

	Number of authorities (Apr. 2012)	Number of building confirmation issued by each category (2011 Japanese fiscal year)
Local governments (*)	448	96,984 (18 %)
Designated Confirmation and Inspection Bodies	124	448,363 (82 %)
Total	572	545,347

(*) Local governments, which are involved in building control administration, are counted

Number of Building Confirmation in Japan



(2-a) Consent from a chief of a fire station

Before issuing building confirmation, consent from:

(a) the chief of the local fire station; or

(b) the head of the fire department (Mayor, If the local government does not have a fire department)

is needed.

This requirement does not apply to detached houses that are located outside of Fire Protection Zones and *Quasi Fire-Protection Zones*.

(2-b) Structural Calculation Review

(a) Skyscrapers with more than 60 m in height, and buildings deigned with advanced structural calculation methods, are required that their structural safety be:

- confirmed by a *Designated Performance Evaluation Body (*1),* and then
- approved by the Minister.

(*1*) *Designated Performance Evaluation Body*

Bodies conduct an evaluation whether the building design, material, etc. meet performance requirements, which are provided in Building Code or not, upon request by:

- a building owner or
- manufacturer.

Bodies are designated by the Minister, and 27 bodies (25 bodies located in Japan and 2 bodies located in foreign countries) have been designated, as of April 2012.

(b) In case of large-sized buildings (excluding buildings of (a)), such as:

- wooden buildings or steel buildings with height of 13 m or more, or eave height of 9 m or more;
- reinforced concrete buildings with height of 20 m or more; and
- steel structure buildings with four or more stories excluding the basement levels,

structural calculation review by one of the *Designated Structural Calculation Review Bodies* (*2) is needed before issuing a building confirmation.

(*2*) *Designated Structural Calculation Review Body*

Bodies conduct a structural calculation review. They are designated by the prefectural governors. This system was introduced in 2007, and 64 bodies have been designated as of March 2010 in Japan.

(c) Structural design of other buildings are checked by a qualified building official or a *Designated Confirmation and Inspection Body.*

Check of Structural Safety

- Building with more than 60 m in height, or
- Buildings designed with advanced structural calculation methods.

Large-sized Buildings, such as:
- wooden buildings or steel buildings with height of 13 m or more;
- reinforced concrete buildings with height of 20 m or more; and
- steel structure buildings with four or more stories.

Other buildings

Check Process

Performance evaluation
by *Designated Performance Evaluation Body*

Approval
by the Minister

Structural Calculation Review
by *Designated Structural Calculation Review Body*

Building Confirmation
By Qualified Building Official or *Designated Confirmation and Inspection Body*

(2-c) Certificate of advanced method

(i) Materials, products, and construction-methods

"Materials, products, and construction-methods" used for buildings must meet specific requirements provided in Building Code, in principle.

In case of Innovative "materials, products, and construction-methods", they sometimes do not satisfy prescriptive specific requirements. They may be used for the building, if they are evaluated by one of the *Designated Evaluation Bodies,* and then approved by the Minister,

(ii) Advanced design methods

Buildings designed with advanced design methods, such as fire-evacuation assessment method, sometimes do not satisfy prescriptive specific requirements. They may be constructed, if their safety is confirmed by a *Designated Performance Evaluation Body*, and then approved by the Minister.

(3) Construction Work

BSL and *Kenchikushi* Law also stipulate the provisions related to construction process, as shown in the next page, so that:

- designers design buildings and
- Builders construct buildings,

in compliance with the regulation.

<Remark>

The requirements indicated by "*" in the next page do not apply to the construction of small buildings (wooden buildings with not more than two stories and of not more than 100 m^2, and non-wooden buildings with not more than two stories and of not more than 30 m^2).

Regulation on construction process

Designers - Only *Kenchikushi* may design buildings. *(*Kenchikushi* Law)
- *Kenchikushi* must design buildings in compliance with the technical requirements. (*Kenchikushi* Law)

Builders - Builders may construct buildings as long as they are designed by *Kenchikushi*. *(BSL)

Building owners - The building owner must assign a *Kenchikushi* as a person who conducts *construction administration*. *(BSL)

Builders - Builders must display the names of:
- the designer,
- the builder,
- the field manager and
- the person who conducts *construction administration*,

in plain view on the construction site. *(BSL)

- Builders may construct buildings as long as a person who conducts *construction administration* is assigned. *(BSL)

A person who conducts construction administration

- When a person who conducts *construction administration* finds that the construction work does not follow the drawings/specifications made by a *Kenchikushi*:
  - he/she must notify the builder immediately; and
  - in cases where the builder does not follow his/her instructions, he/she must report this to the building owner. (*Kenchikushi* Law)
- Once the construction work has been completed, he/she must report the result to the inspector who conducts final official inspection of the building. (BSL)

(4) Interim inspection

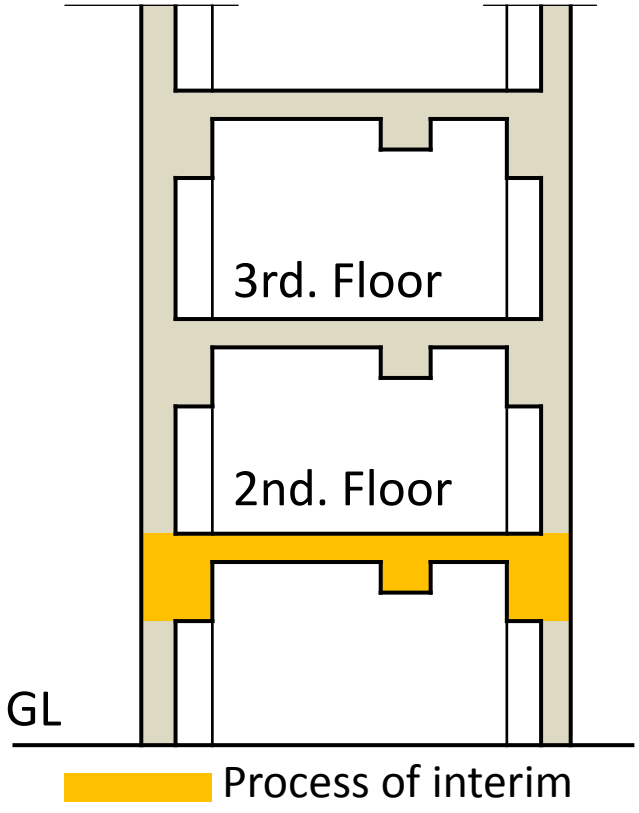
In a case where the construction work includes one of the processes in any of (a) and (b), and the process has been completed, the building owner must request an inspection to:
- a qualified building official under the local government; or
- one of the *Designated Confirmation and Inspection Bodies,*

within four days from the date of completion, on all such occasions.

(a) the process of installing steel bars of:
- the floor in the second floor; and
- beams supporting the said floor,

of apartment buildings with three or more stories. (See the right figure.)

(b) processes stipulated by the local governments.



(5) Final inspection

Once the construction work has been completed, the building owner must submit a notification to;

- a qualified building official under the local government; or
- one of the *Designated Confirmation and Inspection Bodies*;

within four days from the date of completion. The building must undergo inspection to ascertain whether the building conforms to the related regulations.

The person, who was assigned by a building owner to conduct *construction administration,* must submit a report in occasion of this final official inspection.

(6) Occupation

In cases where buildings are newly constructed, the building owner must neither use nor let anyone use the building until he/she obtains a certificate of final inspection.

Exception: in cases of any one of the following items, he/she may use or let someone use the building even before obtaining the certificate of final inspection.

(a) Small buildings, such as ordinal wooden detached houses of 2 stories or less.

(b) Where the local government (or a qualified building official after having received an application for a final inspection) has permitted temporary use after determining that there is no objection from the viewpoint of safety, fire prevention, or evacuation.

(c) Where seven days have passed from the day on which the application for a final inspection was received.

The owner, custodian or occupant must endeavor to maintain the building and its site in a condition complying with legal requirements.

(7) Periodic inspection report

The owners of the buildings that the local government has designated must have *Kenchikushi* or other qualified people carry out safety checks at regular intervals. And, then, the results must be reported to the local government.

“Regular intervals” are ranging from six months to three years.

Many local governments have designated;

- hospitals, hotels, department stores, theaters, apartment houses and offices, that exceeds a specific size; and
- elevators and escalators;

as buildings and building equipment to be reported.

Countermeasures against violation

(1) Orders to building owner, etc.

In cases where a building is in violation of BSL or related regulations, the local government has a power to order:

- The owner of the building,
- The contractor or field manager of the construction work, or
- The owner, custodian or occupant of the building site.

to

- Suspend construction work,
- Suspend use of the building,
- Demolish, relocate, rebuild, add, repair, remodel, or
- Implement other measures in order to correct violations,

(2) Substitute execution

In cases where the local government has issued an order for the necessary measures, and the person ordered to take the measures does not complete the measures, it may proceed:

- to execute, by itself, the measures which should have been taken by the person under obligation, or
- to have a third party take such measures.

(3) Penalties

Any person who violates regulations is subject for penalty of imprisonment with forced labor or a fine. Term of imprisonment and amount of fine are provided in BSL.

Declaration of dissatisfaction

According to the provisions of the BSL, a request for a review on the proceeding or nonfeasance of:

- a *Designated Administrative Agency*;
- a building official; or
- a *Designated Confirmation and Inspection Body*;

can be made to the *Building Review Council* of the local government concerned. In cases where the *Building Review Council* receives such a request, it is obliged to pass judgment, after a public hearing within one month after the receipt of the request. If there is any dissatisfaction with the judgment of the *Building Review Council*, an appeal against the judgment can be made to the Minister.

Chapter 9 Sub-systems

In this chapter, following items are introduced.

- Performance-based Solution Systems
- Quality of materials
- Type Approval and Certification of Specific-type Product Manufacturers

Performance-based Solution System

(1) Historical background

(a) Before 2000

Japanese building regulations were largely a collection of specification-like provisions that dictate how a building must be built, including what materials can be used. And, when someone intended to use materials, equipments, design, or construction methods that did not meet specification-like provisions, he/she could not use them without special approval from the Minister. (The system of 'Special approval from the Minister' can be said one of the 'Performance-based Solution Systems'.)

(b) After 2000

As part of the 1998 revision of the BSL (enforced in June 2000), performance-based provisions were set up in the Building Codes in order to ensure:

- increased flexibility of performance-based design according to the Building Codes;
- correction of the distorted cost structure; and
- smooth introduction of technical innovations and materials from overseas.

Then, the new evaluation system was set up.

(2) Evaluation system

(a) Building materials/products/construction-methods

Building materials/products/construction-methods must meet technical requirements if the codes have specific mandatory standards that apply. It can be basically confirmed through either method below that they meet technical requirements.

(i) To satisfy one of the specifications provided by the prescriptive provisions, including Ministerial Notifications, JIS (Japanese Industrial Standards) or JAS (Japan Agricultural Standards)

(ii) To be approved by the Minister (It is needed to be evaluated by one of the *Designated Performance Evaluation Bodies* (see **Remark** on the next page) prior to approval by the Minister.)

Innovative products, which do not satisfy one of the specifications provided by the prescriptive provisions, can be used if they are approved by the Minister through the process of (ii) above.

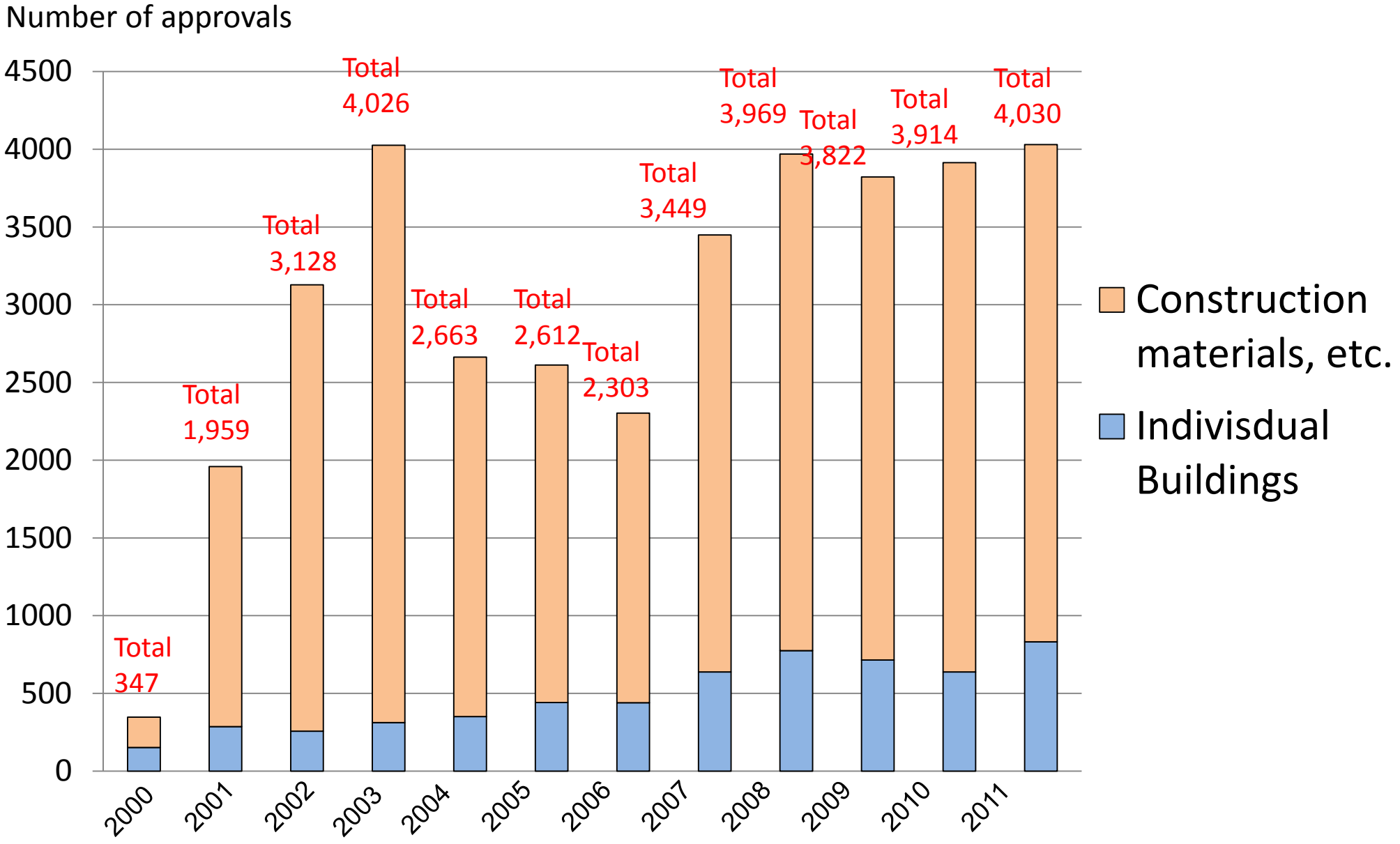
(b) Advanced design methods

Buildings using advanced design methods are required that their safety be confirmed by a *Designated Performance Evaluation Body* (see **Remark**), and approved by the Minister. Skyscrapers with more than 60 m in height are required that their structural safety be confirmed with advanced structural calculation methods, such as Time-series analysis.

Remark: *Designated Performance Evaluation Body*

A *Designated Performance Evaluation Body* conducts an evaluation to determine whether or not the solution meets performance requirements (performance criteria) upon request by a building owner/manufacturer. Evaluation by one of the *Designated Performance Evaluation Bodies* is required prior to approval by the Minister. The designation is done by the Minister, and 27 bodies (25 bodies located in Japan and 2 bodies located in foreign countries) have been designated, as of April 2012.

Trends in Ministerial Approval



(3) Example of Performance-based Solution System (Fire Resistance)

Performance Requirements (basic requirements)

Example: Principal building parts must withstand the heat of a fire that could be expected to occur inside the building until the end of the fire.

Performance Standard (requirements stated in performance-based manner)

Example: When principal building parts are heated with the heat produced during a normal fire, the parts must not be deformed, melted, or cracked, nor must they undergo any other damage detrimental to structural strength.

Choice of the methods

Specification-like Provisions Method

To choose one of the Sample Specifications

Example:

Principal building parts of reinforced concrete with required depth of concrete cover above steel bars

Ordinary Verification Method

To follow instructions described in *Ordinary Verification Method* stated in the Building Codes.

Example:

Principal building parts which are confirmed by the *fire resistance ordinary verification method*

Advanced Verification Method

To follow instructions described in *Advanced Verification Method*, which is more flexible than Ordinary Verification Method (*)

Evaluation by a *Designated Performance Evaluation Body*

Approval by the Minister

The solution is checked through specific prov*isions*.

The solution is checked through *Ordinary Verification Method*.

The solution is checked except the part already checked by the Minister.

Procedure of Building Confirmation and inspection

(*) **Ordinary Verification Methods and Advanced Verification Methods**

Details of the Ordinary Verification Methods are stipulated in the Enforcement Order and the MLIT Notifications. Examples are shown below. On the other hand, details of the Advanced Verification Methods are not issued by the Government. Designated Performance Evaluation Bodies evaluate the design/solution of a building, using a manual approved by the Minister, then the applicant sends the evaluation body decision, along with drawings, to the Minister to request approval.

Fire-resistance Ordinary Verification Method

The *Fire-resistance Verification Method* is used to assume the occurrence of a fire in a room, and to verify that principal building parts can withstand the heat from the fire until the end of the fire. When fire-resistance is verified through this method, prescriptive requirements for fire-resistance are not applied to the solution. The stages are as follows:

(a) Calculation of fire duration;

The predicted time from the start of a fire until its end is calculated, considering the volume of combustible materials, the size of openings, etc.

(b) Calculation of heat-withstanding periods for principal building parts;

The periods over which principal building parts can withstand the heat by the fire are calculated, taking into consideration the type of structural methods used in the principal building parts, the heat of a fires, etc.

(c) Comparison of (a) and (b);

(b), heat withstanding period, must be longer than **(a)**, fire duration.

(4) Example of Performance-based Solution System (Evacuation Safety)

The *Verification Method for Evacuation Safety* is used to check evacuation safety in fires by comparing:

(i) the predicted time required for the evacuation of persons in a building; with

(ii) the time during which the floors, or building, will be at risk from smoke and gas, etc,

according to the design of the building (number of persons present, location of evacuation routes, fire and smoke prevention methods, etc.). When evacuation safety is verified through this method, some prescriptive requirements for evacuation safety are not applied to the solution. The stages are as follows:

(a) Calculation of time until completion of evacuation;

The evacuation time is calculated as a sum of:

(i) the time from the outbreak of fire until the start of evacuation;

(ii) the walking time to the exits; and

(iii) the time lost at exits.

(b) Calculation of time required for smoke and gas to become a hazard;

The time is calculated for fire-related smoke and gas to descend from ceilings to reach a level at which they become hazards to evacuation, taking into account such factors as:

(i) the floor area and ceiling height;

(ii) the smoke exhaust assembly; and

(iii) the types of materials used to finish the ceilings and walls.

(c) Comparison of (a) and (b);

(a), the time until completion of evacuation, must be shorter than **(b)**, the time when smoke/gas becomes a hazard.

Quality of Materials

(1) Requirements on the quality of materials

When *Building materials designated by the Minister* (such as concrete, steel, and seismic isolation devices) are used for *Important building parts* (such as foundations, columns, bearing walls, and fire doors),

(a) these materials must conform to either *Japanese Industrial Standard* (JIS) or *Japanese Agricultural Standard* (JAS), as specified by the Minister;

(b) otherwise they must be approved by the Minister.

In the case of (b), before application for ministerial approval, it is mandatory to have performance evaluations conducted by *Designated Performance Evaluation Bodies* based on the technical criteria concerning the respective materials, which are provided by the *MLIT Notification*.

Place to be installed / Materials	*Important building parts* (See (2))	Others
Building materials designated by the Minister (See (3))	Materials must meet any of the followings: - Materials which conform to designated JIS* and JAS* - Materials which are approved by the Minister	Not regulated
Others	Not regulated	Not regulated

Remark: There are other provisions to state some requirements on building materials, such as requirements concerning fire resistance, formaldehyde, asbestos, and others.

(2) *Important building parts* concerning requirements on building materials

Important building parts from the viewpoint of structural safety, fire-safety or sanitation are defined as following items:

(a) Elements necessary for structural resistance

(b) Parts of fire-resistive, quasi fire-resistive, or fire-preventive construction

(c) Opening fire-protective assembly specified in Article 109 or parts of these

(d) Interior or exterior parts of buildings which are specified by the Minister as those important from the viewpoint of safety or fire-prevention

(e) Partition walls, removable floor boards, floors of the lowest floor, small beams, pent roofs, small stairs for local use, outside stairs, balconies or other parts similar thereto, other than principal building parts which are specified by the Minister as those important from the viewpoint of fire-prevention

(f) Building equipment or parts thereof (excluding equipments subject to certification as specified in the Fire Services Law, electrical appliances as defined in Article 2 paragraph 1 of the Electrical Appliance and Material Control Law, etc)

(3) *Building materials designated by the Minister*

Building materials designated by the Minister concerning requirements on building materials are following materials:

(1) Structural steel and steel castings
(2) High strength bolts and bolts
(3) Structural cables
(4) Steel bars
(5) Welding materials (welding of carbon steel, stainless steel, and aluminum alloy)
(6) Turnbuckles
(7) Concrete
(8) Concrete blocks
(9) Seismic isolation devices
(10) Wood-based glued axial material
(11) Wood-based composite axial material
(12) Wood-based composite insulated panel
(13) Wood-based glued composite panel
(14) Tapping screws and others similar thereto (limited to those with an internal thread formed on structural steel or those that cut and pass through structural steel.)
(15) Fire bolt (referring to those driven into structural steel; same shall apply below)

(16) Aluminum alloy
(17) Mechanical joints for space frame structure
(18) Membrane materials and membrane materials for tent warehouses
(19) Ceramic masonry unit
(20) Asbestos encapsulant
(21) Prestressing Tendons
(22) Autoclaved Light-weight aerated concrete panel

Type approval and Certification of Specific-type Product Manufacturers

At the same time that the performance-based provisions were added to the Building Codes, new systems of *Type Approval* and *Certification of Specific-type Product Manufacturers* were also created to decrease the burden on applicants and to improve the practicality of the examination process.

For example, many prefabricated houses share many of the same design features, and many buildings have much of the same type of equipment, such as mass-produced elevators and water treatment facilities. It is not practical to check these products in every building. Therefore, these systems were introduced.

Type approval and *Certification of Specific-type Product Manufacturers*

	Type Approval	*Certification of Specific-type Product Manufacturers*
Certification authority	*Designated Approval Bodies* (Eight bodies are designated by the Minister, as of April 2012.)	
Objects	building materials or building parts, such as building components and building equipments	
Certification	To confirm that the specifications meet the respective part of the Building Codes	To confirm that the manufacture supplies products with Type Approval through good quality management
Effects	<for **building confirmation** and **on-site inspection**> To be deemed to meet the respective part of the Building Codes through checking that they meet the specification of the approved type.	<for **building confirmation**> To be deemed to meet the respective part of the Building Codes through checking the certificate. <for **on-site inspection** > To be deemed to meet the respective part of the Building Codes through confirming that *a person who conducts construction administration* checked the construction work.