Building Control in Japan
- Part A -

- Table of Contents and Abbreviations

- Part A Basic Structures of Building Control in comparison with Various Countries

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Subjects of Building Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Legal Document and Technical Documents</td>
</tr>
<tr>
<td>Chapter</td>
<td>Performance-based Solutions</td>
</tr>
</tbody>
</table>

- Part B Background Information
- Part C Building Regulatory System
- Part D Technical Requirements for Building Safety and Amenity (Group A)
- Part E Technical Requirements from the viewpoint of City Planning (Group B)
- Part F Technical Requirements from the viewpoint of Land-development (Group C)
- Annexes (under construction)
Building control system depends on the country.
Before the lecture of the building control system in Japan, this ‘Part A’ shows:
(1) Which kinds of subjects are commonly targeted by various countries, and how the subjects can be categorized,
(2) How the various countries make basic legal document and technical documents in responding to each category of subjects, and
(3) How the various countries deal with building plans with innovative solutions, such as:
   - a building plan with brand-new building materials,
   - a building plan with brand-new construction method, and
   - a building plan unusual features of design.
Chapter 1  Subjects of Building Control
In many countries, when someone intends to construct a building, it is required to construct and maintain the building in compliance with technical requirements prepared by the authorities.

These technical requirements may be categorized into three groups (Group A, B, and C) as shown below.

- **Group A**: Technical requirements from the viewpoint of building safety and amenity
- **Group B**: Technical requirements from the viewpoint of city planning
- **Group C**: Technical requirements from the viewpoint of land-development
Group A: Technical requirements from the viewpoint of building safety and amenity

For the purpose to ensure the building safety and people’s amenity, most countries have authorized building technical requirements, and made them mandatory to buildings in their countries.

Aspects covered by such technical requirements are as shown below (example). The technical requirements of such aspects are adopted by many countries.
Aspects of Technical Requirements of **Group A** (examples)

- **Mechanical safety** (Structural safety) against:
  - dead loads (self-weight, permanent load) and live loads (imposed loads), and
  - external force, such as earthquake vibration, snow load, wind load, landslide, etc.

- **Fire safety measures** including:
  - warning equipment,
  - countermeasures against internal fire spread (linings),
  - structural stability against fire,
  - facilities for escape (stairs, smoke control, etc.),
  - countermeasures against external fire spread (external walls, openings and roofs to resist the spread of fire over from one building to another)(*1), and
  - facilities for the fire service (fire service access, fire-extinguishing equipment, etc.)

< to be continued >
- Resistance to contaminants,
- Resistance to the passage of sound,
- Ventilation, sanitation, drainage and waste disposal,
- Protection from falling (handrail),
- Conservation of fuel and power (*2),
- Accessibility for handicapped people (*2),
- Restriction on location in order to prevent disasters, such as landslide and tsunami. (*3)
- Minimum floor area per dwelling unit from the viewpoint of housing policy.

(*1) In Japan, this aspect is categorized into Group B.
(*2) These aspects were introduced relatively recently in the world.
(*3) In many countries, this requirement is implemented in combination with city planning.
Group B: Technical requirements from the viewpoint of city planning

Local authorities in most countries have authorized their city plans consisting of some maps and values, which indicate:
- location of various land use zones (residential zone, commercial zone, industrial zone, etc.),
- limit values of building height, FAR (Floor Area Ratio) and BCR (Building Coverage Ratio),
- location of external wall lines,
- etc.

Then, in order to make construction activities of buildings follow the city plan, it is required to construct and maintain buildings in compliance with building technical requirements responding to the local conditions shown in the city plan. Aspects covered by such technical requirements are as shown below. The technical requirements of such aspects are adopted by many countries.

Aspects of Technical Requirements of Group B (example)

- Building use,
- Location of external wall,
- Building height,
- FAR (Floor Area Ratio) and BCR (Building Coverage Ratio),
- Landscape feature (shape of roof, material and color of external wall, restriction on advertisement board, etc.),
- Obligatory number of parking lots.
Group C: Technical requirements from the viewpoint of land-development

When someone implements a large scale development, such as housing estate development, the development plan goes through two steps as shown below. And, in many countries, two kinds of permits are required responding to each step.

**Step 1: Land-development**

A developer:
1. makes a land-development plan,
2. gets land-development permit or the like,
3. constructs necessary infrastructure, and then
4. sells plots to consumers/companies.

**Step 2: Building Construction**

Each building owner (consumer/company):
1. makes his/her own building plan,
2. gets building permit, and then
3. constructs his/her building.
Two kinds of permits as shown above have different characters from each other.

<table>
<thead>
<tr>
<th></th>
<th>Land-development Permission (*1)</th>
<th>Building Permission (*2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>when to apply</strong></td>
<td>Before construction of infrastructure of the development area</td>
<td>Before construction of each building</td>
</tr>
<tr>
<td><strong>applicant</strong></td>
<td>Developer</td>
<td>Building owner</td>
</tr>
<tr>
<td><strong>criteria</strong></td>
<td>Technical requirements of: - Group C</td>
<td>Technical requirements of: - Group A and Group B</td>
</tr>
</tbody>
</table>

(*1) The actual official procedure depends on the country. For example, it is done through:
- land-development permission in Japan,
- sub-division control system in many states of the USA,
- concession process in China, and
- formulation process of B Plan in Germany.

(*2) ‘Building Permission’ is very common in the world, while, In Japan, it is required for a building owner to get ‘Building Confirmation’ instead of ‘Building Permission’. ‘Building Confirmation’ is not so different from ‘Building Permission’ of the other countries.

Aspects covered by such technical requirements are as shown below. The technical requirements of such aspects are adopted by many countries.
Aspects of Technical Requirements of **Group C** (example)

- **The use of scheduled buildings** shall conform the city plan (*).
- **Roads** shall conform the road construction standard (*) in considering the scheduled buildings, etc.
- **Parks**, open spaces and other vacant spaces for public use shall conform construction standard (*) in considering the scheduled buildings, etc.
- **Sewers and other drainage facilities** shall conform the construction standard (*) in considering the scheduled buildings, etc.
- **Water supply facilities** shall conform the construction standard (*) in considering the scheduled buildings, etc.
- **Schools and other facilities** shall conform the regional-development standard (*) in considering the scheduled buildings, etc. if necessary.

(*) City plan and these standards are prepared by related authorities.
Chapter 2  Basic Legal Document and Technical Documents
Building control is an activity to limit people’s freedom of construction. Therefore, it is necessary for the Government to issue legislative documents regarding building control system as shown below.

(1) **Basic Legal Document and its supplementary documents**

At first, it is necessary to establish Basic Legal Document, main points of which are as shown below.

(a) Buildings must be constructed and maintained in compliance with technical requirements, which are prepared by authorities. >> (2)

(b) When someone intends to construct a building, he/she must complete the official procedure, such as building permission.

(c) The government has a power to take countermeasures against buildings which violates technical requirements.

(2) **Technical Documents and their supplementary documents**

Secondary, it is necessary to authorize some sets of technical requirements, which are mentioned in above (1)(a). They are documents stipulating specific criteria to satisfy technical requirements of Group A.

Relationship between ‘(1) Basic Legal Document’ and ‘(2) Technical Documents’ is as shown in the figure of the next page.
**Relationship between Basic Legal Document and Technical Documents for Group A**

(1) **Basic Legal Document stipulating:**

(a) Obligation of buildings to follow the technical requirements (*a*)

(b) Official procedure, such as building permission (*b*)

(c) Countermeasures against violation (*c*)

(2) **Technical Documents stipulating:**

Technical Documents are formulated based on the provision of Basic Legal Document.

Some sets of specific technical requirements for various fields, such as structural safety and fire safety.

Technical Documents are used as criteria for (b) and (c).

In some countries, their Basic Legal Documents stipulate:
- not only necessary provisions as Basic Legal Document,
- but also basic parts of technical requirements as Technical Documents.
(*a) It is also important to stipulate who has a power to determine or approve the mandatory technical requirements.

(*b) As an official procedure to ensure compliance with the technical requirements, building permission and on-site inspection by the government is very common in the world, while some countries, such as Japan, England and Australia, adopt an official procedure done by the non-government parties. In these countries, building owners may choose:
   - either official procedure done by the local government,
   - or official procedure done by the non-government parties.

(*c) The power of the government for the countermeasures against violation includes rights:
   - to order related parties, such as a building owner, to:
     - stop the construction work,
     - stop the use of the building,
     - correct the building, or
     - demolish the building, and then,
   - to execute by itself what the government ordered, in cases where the government orders are not implemented within the grace period.
Basic Legal Document comparing several countries

Countries can be categorized into two types as shown below.

<table>
<thead>
<tr>
<th></th>
<th>Countries of Type 1</th>
<th>Countries of Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Party who establishes Basic Legal Document</td>
<td>The National Government itself</td>
<td>Major local authority, such as state, province and large city</td>
</tr>
<tr>
<td>Applicable area</td>
<td>All over the country</td>
<td>Major local authority which has issued its own Basic Legal Document</td>
</tr>
<tr>
<td>Parties who:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) give building permits for individual construction activities, and (2) take countermeasures against illegal buildings.</td>
<td>Local authorities * In some countries, the National Government itself also gives building permits for large scale buildings, etc.</td>
<td>Major local authority which has issued its own Basic Legal Document</td>
</tr>
</tbody>
</table>
Specific Basic Legal Documents in countries of **Type 1** are as shown below.

<Common characteristics>
Every Basic Legal Document is proclaimed by the National Government itself.

<table>
<thead>
<tr>
<th>Country</th>
<th>Name of Basic Legal Document</th>
<th>Proclaimer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>Building Standard Law</td>
<td>National Government</td>
</tr>
<tr>
<td>England</td>
<td>Building Act</td>
<td>ditto</td>
</tr>
<tr>
<td>Thailand</td>
<td>Building Control Act</td>
<td>ditto</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Construction Law</td>
<td>ditto</td>
</tr>
<tr>
<td>the Philippines</td>
<td>National Building Code</td>
<td>ditto</td>
</tr>
</tbody>
</table>
Specific Basic Legal Documents in countries of **Type 2** are as shown below.

<Common characteristics>
Basic Legal Document depends on the local authority. Therefore, most Federal Governments are working to harmonize various Basic Legal Documents in their country, while Federal Government of USA is not directory involved in the building control issue.

<table>
<thead>
<tr>
<th>Country</th>
<th>Name of Basic Legal Document</th>
<th>Proclaimer</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>Building Code</td>
<td>each state and large city</td>
</tr>
<tr>
<td>Germany</td>
<td>State Building Regulation</td>
<td>each state</td>
</tr>
<tr>
<td>Australia</td>
<td>Building Act</td>
<td>each state and territory</td>
</tr>
</tbody>
</table>
| India   | Building Bye-law             | each state and large city  
* Delhi is an exception. |
Technical Documents comparing several countries

Countries can be categorized into two types as shown below.

<table>
<thead>
<tr>
<th>Party who authorizes Technical Documents</th>
<th>Countries of <strong>Type 1</strong></th>
<th>Countries of <strong>Type 2</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The National Government itself</strong></td>
<td><strong>All over the country.</strong></td>
<td><strong>Major local authority, such as state, province and large city</strong></td>
</tr>
<tr>
<td>* Local authorities may authorize additional requirements in consideration of local circumstances.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Applicable area</strong></td>
<td><strong>Major local authority which has authorized Technical Documents</strong></td>
<td></td>
</tr>
<tr>
<td><strong>In some countries, their Basic Legal Documents stipulate:</strong></td>
<td><strong>In order to avoid confusion due to differences in requirements, many countries are working to harmonize various Technical Documents in their countries. Detail will be described later.</strong></td>
<td></td>
</tr>
</tbody>
</table>

- not only necessary provisions as **Basic Legal Document**,  
- but also basic parts of technical requirements as **Technical Documents**.

For example, Building Standard Law of Japan, National Building Code of the Philippines, and Building Code of each state and large city of USA have a dual role of both Basic Legal Document and Technical Documents.
Specific **Technical Documents** in countries of **Type 1** are as shown below.

<Common characteristics>
Every Technical Document is authorized by the National Government itself. And then, it applies commonly to all over the country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Name of main Technical Documents and its characteristics</th>
<th>Authorizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>- Building Standard Law (providing <strong>main point</strong> of technical requirements)&lt;br&gt;- Enforcement Order (providing <strong>detail</strong> of technical requirements)</td>
<td>National Government</td>
</tr>
<tr>
<td>England</td>
<td>- Building Regulations (providing technical requirements with <strong>performance-based descriptions</strong>)&lt;br&gt;- Approved Documents (providing <strong>practical guidance</strong> to satisfy technical requirements described in Building Regulations)</td>
<td>ditto</td>
</tr>
<tr>
<td>Thailand</td>
<td>- Ministerial Regulations</td>
<td>ditto</td>
</tr>
<tr>
<td>Vietnam</td>
<td>- Vietnam Building Code</td>
<td>ditto</td>
</tr>
<tr>
<td>the Philippines</td>
<td>- National Building Code&lt;br&gt;- National Structural Code (*)&lt;br&gt;  * National Structural Code has been published by the nationwide non-government organization (ASEP: Association of Structural Engineers of the Philippines), and then, <strong>has been positioned as Referral Code to National Building Code.</strong></td>
<td>ditto</td>
</tr>
</tbody>
</table>
Specific **Technical Documents** in countries of **Type 2** are as shown below.

<Common characteristics>
Technical Documents depends on the local authority. In order to avoid confusion due to differences in technical requirements, many countries are working to harmonize various Technical Documents in their countries. Consequently, technical requirements in the field of structural safety are almost common in each country, while technical requirements in the field of fire safety somewhat vary in regions even in the same country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Technical Documents</th>
<th>Proclaimer</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td><strong>Building Code</strong>&lt;br&gt;<strong>&lt;Harmonization&gt;</strong> International Building Code and related Code are issued by ICC (International Code Council). They are <em>model codes</em> for reference of states and large cities.</td>
<td>each state and large city</td>
</tr>
<tr>
<td>Australia</td>
<td><strong>Building Code</strong>&lt;br&gt;<strong>&lt;Harmonization&gt;</strong> Building Code of Australia is issued by ABCB (Australian Building Codes Board). It is a <em>model code</em> for reference of states and territories.</td>
<td>each state and territory</td>
</tr>
<tr>
<td>India</td>
<td><strong>Building Bye-law</strong>&lt;br&gt;<strong>&lt;Harmonization&gt;</strong> (1) Federal Government of India published Model Building Bye-law in 2016, and recommends local authorities to issue each Building Bye-law in referring the Model Building Bye-law. (2) National Building Code of India is issued by the Minister. Its many provisions are quoted in many Building Bye-laws.</td>
<td>each state and large city <em>Delhi is an exception.</em></td>
</tr>
</tbody>
</table>
Basic Legal Document and Technical Documents for Group B

Basic Legal Document for Group B (City Planning Act or the like)

At first, it is necessary to establish the document, which gives the government a power to control buildings regarding technical requirements of Group B.

In many countries, City Planning Act or the like has been established for this purpose.

Main points of City Planning Act or the like are as follows:

(a) It stipulates:
   - what should be indicated in the City Plan,
   - who determine the City Plan for each region, and
   - how to determine the City Plan.

(b) Buildings must be constructed and maintained in compliance with:
   - the city plan and
   - the technical requirements, which are prepared by authorities.

(c) When someone intends to construct a building, he/she must complete the official procedure, such as building permission.

(d) The government has a power to take countermeasures against a building which violates city plan or technical requirements.

* Statements regarding (b), (c) and (d) are provided in Basic Legal Document for Group B in some countries including Japan.
City Plan and Technical Requirements

In many countries, based on City Planning Act or the like,
(1) local authorities authorize their city plans consisting of some maps and values, which indicate:
   - location of various land use zones,
   - limit values of building height, FAR (Floor Area Ratio) and BCR (Building Coverage Ratio),
   - location of external wall lines,
   - etc.
(2) On the other hand, the national government or local authorities issues Technical Document, which stipulates necessary provisions defining:
   - which kinds of building use are allowed in each land use zone,
   - how to measure the building height, FAR and BCR,
   - which parts of buildings are allowed to stick out from the external wall lines,
   - etc.

And then, buildings are required to follow technical requirements, which are applied to each building responding to its site-location in the city plan.

Relationship among:
(1) Basic Legal Document for Group B (City Planning Act or the like),
(2) City Plan, and
(3) Technical Document
is as shown in the figure of the next page.
Relationship among (1) Basic Legal Document (City Planning Act or the like), (2) City Plan, and (3) Technical Document

(1) City Planning Act stipulating:
(a) Necessary provisions for City Plan (*a)
(b) Obligation of buildings to follow the city plan and technical requirements
(c) Official procedure, such as building permission (*c)
(d) Countermeasures against violation (*d)

(2) City Plan consisting of:
- Determination by local authorities
- some maps and values

(3) Technical Document defining:
- which kinds of building use are allowed in each land use zone,
- how to measure the building height, FAR and BCR, etc.

In some countries, their City Planning Act stipulate:
- not only necessary provisions as Basic Document,
- but also basic requirements as Technical Document.
(*a) City Plans are determined by local authorities in most countries.

(*c) As an official procedure to ensure compliance with city plan and the technical requirements, building permission by the government is very common in the world.

(*d) The power of the government for the countermeasures against violation includes rights:
- to order related parties, such as a building owner, to:
  - stop the construction work,
  - stop the use of the building,
  - correct the building, or
  - demolish the building, and then,
- to execute by itself what the government ordered, in cases where government orders are not implemented within the grace period.
Chapter 3  Performance-based Solutions
In many countries, in their early stages of building control history, they provided building requirements with sets of specification-like provisions. Such specification-like provisions were formulated in assuming normal buildings which were constructed with commonly-used construction method and usual features of design.

For example,

“In case of the hospital which has three or more stories, it must be constructed with fire resistive construction and all parts of the floor to be used as hospital must be within 40 m of the nearest staircase.”

is one of the specification-like provisions of Japanese building requirements.
Specification-like provisions became difficult when it came to the buildings with innovative solutions, such as:

- buildings with brand-new building materials,
- buildings using brand-new construction methods, and
- buildings with unusual features of design.

Therefore, from around the year 2000, many progressed countries adopted performance-based code system in their building requirements. For example,

“When a fire has started in any room of the building, during the time period until all occupants have completed evacuation from the building to the ground, smoke or gas must not descend to a level that is detrimental for evacuation.”

is provided as one of the performance-based provisions of Japanese building requirements. When an applicant selects application of this provision, the authorities may judge whether the building plan complies with evacuation requirements of the Japanese building code or not with this provision instead of the specification-like provisions.

‘Performance-based Solution System’ using ‘Performance-based provisions’ depends on countries, as shown in the pages below.
A set of ‘Requirements’ contained in ‘Schedule 1’ of ‘Building Regulation 2010’, which was issued by the Minister

All buildings are required to comply with these ‘Requirements’, which are described with performance-based manner. It is, however, not easy to judge whether each building solution complies with ‘Requirements’ or not, because they are described in performance-based manner. Therefore, ‘Approved Documents’ are prepared as shown in the right.

‘Approved Documents’ which were approved by the Minister

Most buildings are designed following ‘Approved Documents’, which are described with specification-like manner. If a building complies with ‘Approved Documents’, the building is deemed to satisfy ‘Requirements’.

Alternative ways

Every applicant may select ‘alternative ways’ instead of solutions stated in ‘Approved Documents’. In this case, the authority judges whether the building plan complies with building code or not, directly using ‘Requirements’ instead of descriptions in ‘Approved Document’.
Performance-based Solution System in Australia

‘Performance Requirements’, which is provided in BCA (Building Code of Australia)

All buildings are required to comply with these ‘Performance Requirements’, which are described with performance-based manner. It is, however, not easy to judge whether each building solution complies with ‘Performance Requirements’ or not, because they are described in performance-based manner. Therefore, ‘Deemed-to-Satisfy Provisions’ are prepared as shown in the right.

‘Deemed-to-Satisfy Provisions’, which are provided in BCA.

Most buildings are designed following ‘Deemed-to-Satisfy Provisions’, which are described with specification-like manner. If a building complies with ‘Deemed-to-Satisfy Provisions’, the building is deemed to satisfy ‘Performance Requirements’.

Alternative Solutions

Every applicant may select ‘alternative solutions’ instead of solutions depending on ‘Deemed-to-Satisfy Provisions’. In this case, the authority judges whether the building plan complies with building code or not, directly using ‘Performance Requirements’ instead of ‘Deemed-to-Satisfy Provisions’. There are some ‘Verification Methods’ as assessment methods responding to some ‘Performance Requirements’.
Performance-based Solution System in USA

‘Building Requirements’, which are provided in each Building Code, which is issued by each state or municipalities.

Most buildings are designed following ‘Building Requirements’, which are described with specification-like manner. There are, however, some innovative buildings. Therefore, ‘Deemed-to-Satisfy Provisions’ are prepared as shown below.

Special Procedure for Alternatives

Most states and municipalities establish special procedure to approve alternatives in their building codes as shown below.

‘Provision for Alternatives’, which is provided in most Building Codes.

For example, Model Code of IBC (International Building Code) has a provision as shown below. “An alternative material, design or method of construction shall be approved where the building officials finds:
- That the proposed design is satisfactory and complies with the intent of the provisions of this code, and
- That the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.”
Performance-based Solution System in Japan

This item is introduced in Chapter 9 of Part C.