

THE NEW JAPANESE HOUSING LAW TO PROMOTE THE LONGER LIFE OF HOUSING AND EXAMPLE OF CHANGES IN THE LAYOUT OF PUBLIC HOUSING OVER 40 YEARS IN JAPAN

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Abstract

The new law which promotes the longer life of housing in Japan passed the Upper House of the Japanese Parliament on October 28, 2008. This paper reports the technical guidelines of the new law. The author also shows an example of changes in the layout of public housing over 40 years in Japan and examines how the residents have changed the infill according to the changes in their lifestyles. The author believes the study of long term occupancy records will give a useful knowledge to design longer life housing.

Keywords: public rental housing, long-term occupancy, occupancy records, adaptability, infill improvements

INTRODUCTION

This paper reports the outlines of the new law, which promotes the longer life of Japanese housing and outlines the legal technical guidelines. The new law, otherwise known as the 200-year housing law which promotes the longer life of housing in Japan, passed the Upper House of the Japanese Parliament on October 28, 2008, following deliberations in the Lower House in the preceding week. The concept of this law was presented by former Prime Minister Yasuo Fukuda in 2007.

According to the studies done by Professor Yukio Komatsu of Waseda University, the average life time of newly-built detached wooden houses in Japan was almost fifty years. From the viewpoint of sustainable development, we believe it is necessary to expand the life span of Japanese houses. There are various reasons for the short life span of Japanese housing. Fires following the Great Kanto Earthquake that struck the Tokyo area in 1912 caused a huge loss of building stock, so only a small amount of old houses remain. The rapid economic growth that followed the Second World War enabled the Japanese to afford to live in larger houses with modern facilities. Many people rebuilt their smaller temporary houses built just after the end of the war. The new law aims to supply long life housing in Japan from now on, in addition to using the existing houses much longer.

THE NEW JAPANESE HOUSING LAW TO PROMOTE THE LONGER LIFE OF HOUSING

Present-day Japan faces three problems: 1) people cannot enjoy the feeling of wealth they should as members of a mature society, 2) the falling birth rate and aging of society are increasing the welfare burden, and 3) global environmental problems and waste problems are becoming increasingly severe. To overcome these problems we must transform society from its existing state, a consumption society which builds and demolishes, into a stock society which builds good objects and takes scrupulous care of them to preserve them for long periods of time. The goal of extending the life span of housing is to overcome these problems.

The technical guidelines following the new law explain the technical details required for extending the life span of housing. The client can apply for tax reductions and can receive subsidies by designing and building a house which complies with the new law and technical guidelines.

Specific incentive measures have been implemented. 1) When a person has purchased or constructed and occupied long life-span superior housing from 2009 to 2011, the person is exempt from income tax up to a maximum value of 6 million yen over a ten year period according to the balance of the person's housing loan at the end of each year. 2) When a person has purchased or constructed and occupied long life-span superior housing, the person receives an income tax exemption equal to 10% of the construction cost which exceeds that of ordinary housing (limited to 10 million yen). 3) The fixed asset tax on long life-span superior housing is reduced by 1/2 for two years longer than in the case of ordinary housing.

There are nine chapters in the technical guidelines, and an appendix.

Chapter 1. Durability of the material; Deterioration measures;

House structures should be able to be used for several generations. They should be designed so that the period their structure can be used continually under maintenance conditions considered normal is at least 100 years. It should be counted on to be usable for between 150 and 200 years under appropriate maintenance.

Example: In the case of reinforced concrete (RC) construction, one of the following types of design should be taken.

- Water cement ratio of 45% or lower.
- Water cement ratio of 50% or lower and covering thickness (of concrete) increased by 1 cm.

Chapter 2. Structural design; Earthquake resistance

Make it easier to repair damage caused by an extremely uncommon earthquake to ensure the continuous use of the house by reducing the level of damage caused by earthquakes.

Either build it as a base-isolated building or take measures to reduce deformation caused by large earthquake force at or below a specified level.

Example: The ratio of the safety limit deformation of each above-ground story to its height should be 1/100 or less (in the case of wooden construction, 1/40 or less) during a large-scale earthquake.

Chapter 3. Ease of maintenance and renewal

Measures necessary so that the maintenance (cleaning, inspection, repair and update) of the interior finishing and facilities which have shorter life spans than the building structures can be carried out easily should be taken.

- The building should be designed so that private piping and common piping are easily maintained.
- The building should be designed so that common drainage pipes are easily maintained. It shall be possible to maintain common piping of condominium apartments without entering private parts of dwellings.

Chapter 4. Adaptability

Measures should be taken which permit the modification of room layouts according to changes in the lifestyle of the occupants. Ceiling height of the building frame must be adequate for piping and wiring according to modification of the original room layouts.

Example: A specified building frame ceiling height or higher (2,650mm or higher) must be ensured.

Chapter 5. Universal design for the elderly and handicapped

Necessary space in common halls and corridors must be maintained so that it is possible to perform renewal work to make a home barrier free in the future.

Example: The width etc. of common halls and corridors must be designed to ensure necessary space.

Chapter 6. Energy efficiency; Energy conservation

The performance of the insulation etc. must ensure energy conservation.

Chapter 7. Floor space for each unit

Sufficient space must be secured to ensure the occupants have reasonable levels of living standards.

Chapter 8. Environment of the nation

The maintenance and the improvement of the living environment and the landscape in the surrounding area.

Chapter 9. Long-term maintenance planning

Plans for periodical inspections and future maintenance.

- Concerning items which should be entered in written maintenance plans, namely
 - 1) Elements necessary for structural resistance,
 - 2) Parts which prevent the infiltration of rainwater, and
 - 3) Water supply and water drainage systems,inspection periods and contents must be established.
- Inspections must be performed at least once every 10 years

Appendix: documentation and house records

Figure 2: Legend of Habitable Room Codes, Note 2

ANALYSES OF OCCUPANCY RECORDS OF A BUILDING WITH AN ADDITION

The household surveyed was a long-term occupant household which had occupied their home in 1977 and had lived in their home for 31 years at the time of the survey. The family composition at the time of occupancy in 1977 was a four-person household, M32, F30, f5 and m3 Note 1) (family type Ci). The family type was Cmf in 1990, and in 1997, the eldest daughter, and in 2002, the eldest son moved out to marry. At the present time, the household is a two-person household, M63 and F61 (family type Co-).

Adaptive room modifications were performed four times during the 31 year period. The first was carried out in 1983 to provide private rooms for the children who were maturing.

Adaptive room modification, this time accompanied by infill improvement, was done for the second time in 1987 when the building was enlarged. Habitable room E became the parents' (M42, F40) bedroom, habitable room A which had been their bedroom until that time became a combined den and private room for the eldest son (m13), and habitable room B which had been used as a living room was changed to the eldest daughter's (f15) private room. The use of habitable room C was changed by removing part of an interior wall between it and the kitchen so that it and the kitchen could be used as a single room.

Later, when the children became independent in 1997 and 2002, adaptive room modification was done for the third and fourth times. A characteristic of this household is that as each child became independent, rooms were adaptively modified in stages.

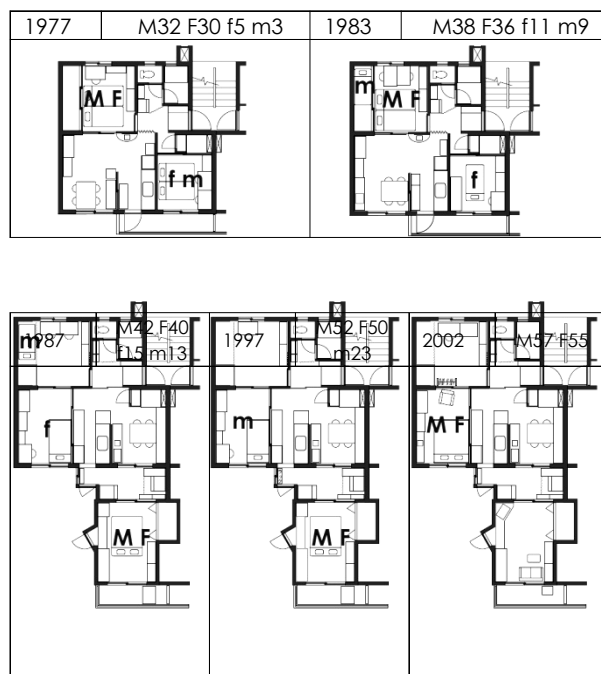


Figure 3: Sample of Occupancy History in Building with an Addition Note 2

ANALYSES OF OCCUPANCY RECORDS OF A BUILDING WITHOUT AN ADDITION

The household surveyed was a long-term occupying household which first occupied the building in 1966, one year after completion of the residential estate, so they had occupied their home continuously for 42 years at the time of the survey. The family composition at the time of occupancy was a three-person household, M24, F21, F²- (grandmother). Their first daughter and first son were born in 1968 and 1971 respectively, and their second son was born in 1973. The household composition in 1973 when their second son was born was a five-person household, M31, F28, F²-, f5, m2, and m0 (family type αC), and six people was the largest number of members in the occupancy records of this household.

In 1983, the grandmother moved to a separate home in response to the maturation of the children, changing this household to a five-person household, M41, F38, f15, m12, and m10 (family type Ca). Even after the family became Cmf type in 1986, during the 7 years until the eldest son became independent in 1993, the parents and grown children lived together. In 1995, the eldest daughter left home, changing it to a three-person household, M66, F63, and m35 (family type Cmf).

They performed adaptive room modification five times during the 42 years. The first time was in 1968 when their first child was born: the parents and the grandmother switched bedrooms. The second and third times, adaptive room modification was done to provide private rooms for the children who were maturing. When the grandmother moved out in 1983, adaptive room modification was done a fourth time, then in 1995, it was done again when the eldest daughter moved out.

Infill improvements done twice during the 42 years were both paid for by the household. When the grandmother moved out in 1983, sliding doors were removed from between habitable rooms A and B, and between habitable room B and the kitchen and replaced with accordion curtains. And a closet in habitable room A was converted into a western style clothes closet.

1966	M24 F21 F'-	1968	M26 F23 F'- f0	1973	M31 F28 F'- f5 m2 m0
1974 ~ 1982	1983	M41 F38 f15 m12 m10	1995	M53 F50 m22	

Figure 4: Example of Habitable Room Codes in Building Without an Addition

CONCLUSIONS

The state of the occupancy records of each dwelling show a number of innovative measures which householders take over a period of many years so they can enjoy the limited space in their dwellings more effectively and more comfortably. Families mature and change continuously, and demand adaptability so they can make flexible use of dwellings in which they can live for long periods of time. This survey of long-term occupancy records will provide basic knowledge needed to create methods of architectural planning to achieve long-term occupancy. The Technical Guidelines for long-life housing demand adaptability, but the survey of long-term occupancy records will reveal what kinds of adaptability will be effective.

NOTES

* 1 : Family types are classified by the age of the eldest child of a family.

Co+: Couple only (the wife is under 40 years of age)

Cb: Parents with child/children (Eldest child is 0-2 years old)

Ci: Parents with child/children (Eldest child is 3-5 years old)

Cj: Parents with child/children (Eldest child is 6-8 years old)

Ck: Parents with child/children (Eldest child is 9-11 years old)

Cs: Parents with child/children (Eldest child is 12-14 years old)

Ca: Parents with child/children (Eldest child is 15-17 years old)

Cmf: Parents with child/children (Eldest child is over 18 years old)

Co-: Couple only (The wife is over 40 years old)

αC: Family with grand parent(s)

CC: Two-couple family

B: Single-parent family

S: Single-person family

βC: Family with grandsons/granddaughters

* 2 : The symbols M, F, f in the figure show the rooms where the residents slept.

USING REFERENCES

The following URL of MLIT, Ministry of Land, Infrastructure, Transport and Tourism gives the current information about the new law.

http://www.mlit.go.jp/jutakukentiku/house/jutakukentiku_house_tk4_000006.html

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