

Building Code and Existing Buildings in Japan

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1995 Great Hanshin-Awaji (Kobe) Earthquake

- Most of the collapsed buildings (approx. 100,000) were conventional wooden houses.
- 80% of the total deaths (6,400) or 90 % of immediate deaths were caused by crushing or suffocation mainly due to house collapse.
- 95 % of collapsed buildings were built before 1981 BSL amendment (in the most severely damaged area).



- Most tragedies and difficulties in disasters are attributed to loss of lives and shelters due to destruction of houses.
- Financial burden of governments caused by destruction of houses is too huge.
- In earthquakes, most of the victims are killed by their own houses.

Securing safety of houses is one of the highest priority in disaster risk management

Japan's policies for safer houses

- Building Standard Law (1950) / Fire Service Law
- Act for Promotion of Retrofitting (Improvement of Structural Safety) (1995)

To promote seismic retrofitting of existing vulnerable buildings

- Technical development
- Awareness Raising
- Financial assistance for retrofitting
- Earthquake insurance

Full scale Shake- table testing




E-Defense

Retrofitted and
non-retrofitted



Simplified Seismic Diagnosis for wooden houses for awareness raising


Earthquake Resistance Test of Your Home for Everybody



Protect your valuable home by yourself

Supervised by Housing Bureau, the Japanese Ministry of Land,
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Examination for Earthquake Resistance



Question 1 When was the house built?

Items	point
The house was built after June 1981.	1
The house was built before May 1981.	0
It is not clear or unknown.	0

Point

Note The Japanese Building Standard Law was revised and the earthquake resistant codes were strengthened in June 1981. It was reported that the buildings constructed after 1981 showed little damages at the Niigata Earthquake in 1995.

Before

May 1981

June 1981


After

Question 2 Has the house experienced big disasters so far?

Items	point
No, it hasn't experienced any big disasters.	1
Yes, it has met with a flood, a fire, a car accident, a big earthquake or a landslide.	0
It is not clear or unknown.	0

Point

Note If your house has met a flood, a fire, a car accident, a big earthquake or a landslide during a long period of lifetime, and if there are only a few repair works, the house may have accumulated invisible damages. In such cases, you need a detailed investigation by an expert.




Question 3 About the extension works

Items	point
It was not extended, or was extended with necessary procedures.	1
It was extended without necessary procedures, or extended more than twice. A part of wall or columns was removed at the extension works.	0
It is not clear or unknown.	0

Point

Note In general, over 15-year-old houses from the construction are often extended. The essential point is that the repair or retrofit of existing parts is properly associated and if existing parts are correctly connected with extended parts.




Question 4 About damaged conditions and the repair / retrofit

Items	point
No damage and in sound condition, or the damage has repaired soon.	1
Superannuated, or exists rot, termite etc.	0
It is not clear or unknown.	0

Point

Note Please judge by looking through the house based on your experience. A warped roof top or warped eaves, inclined columns or floors or light rafter above the superannuated structure. In soft floor, when you push the side with a screw driver, and they became soft (with noise), a grave rotted materials or damages by termites. Especially, please examine the north side and surrounding of the bathroom in detail. Termites can be recognized, and identified as the termites with wings float in a group during rainy season.



Financial assistance for retrofitting

- Seismic evaluation of buildings
2/3 of the cost is subsidized by the national & local government
- Seismic retrofitting of houses
 - 15% of the cost is subsidized jointly by the national and local governments
 - Low interest rate for the loan
 - Deduction (10% of the cost) from Income Tax
 - Reduction (1/2 for three years) of Property Tax

Is retrofitting of vulnerable houses accelerated?

Resource allocation for disaster management

New construction vs. Existing houses/structures

Resource allocation Lives that could be saved

New construction



Existing buildings



Thank you !

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