

Criteria for evaluating and judging the possibility of utilizing existing housing through renovations for early development of temporary housing and housing constructed after a disaster

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1. Introduction

In the event of a major disaster, such as an earthquake that directly hits the Tokyo metropolitan area, a large amount of emergency temporary housing and reconstruction housing (disaster public housing) will be needed. To reduce the cost of supplying such housing and to ensure housing stability for disaster victims at an early stage, vacant private rental housing stock needs to be utilized in a new way. This paper introduces the examination of criteria for evaluating and judging housing that can be supplied as temporary housing (rented temporary housing) by quickly repairing and renovating not only the housing that is undamaged in a disaster but also housing with minor damage, or as housing to support reconstruction (rented housing for reconstruction) by improving the comfort of living through renovating and turning them into a rented housing for reconstruction.

2. Formulation of proposed criteria for determining the continuity of the use of damaged housing through renovation (conversion to rented temporary housing)

Fact-finding survey was conducted on cases where existing houses that had suffered minor damage during the Kumamoto earthquake were repaired and used as temporary rental housing (repaired and deemed temporary housing). The analysis was also conducted on the relationship between the repair work, construction period, and cost. In cases where disaster victims were able to move in quickly, many of the work was conducted for about one month after the earthquake in April (Figure 1). The work included repairing cracks in exterior walls (nonstructural walls) and water tanks in common areas, and repairing interiors, fittings, and water leaks inside individual units.

Based on the findings of this survey and assuming that buildings will be checked in stages immediately after an earthquake, a draft of the criteria was prepared consisting

of the following items: (1) basic information to be identified by a local government during normal times (location, year of construction, floor plan, etc.), (2) safety confirmation etc. (confirmation of the structural safety of a building), and (3) criteria for determining the continuity of use (access to housing units, facilities, etc.).

3. Formulation of criteria for determining which houses can be used as rented housing for reconstruction (turning housing into rented housing for reconstruction)

Based on the survey of 20 municipalities with experience in converting existing housing into public housing by renting (including one municipality that had converted housing into to reconstruction housing), items of the criteria for renting housing and required levels were identified and organized (Figure 2).

Figure 1: Example of the timing of moving in and construction of repair-type deemed temporary housing

No.	Units	Structure	Floors	2016											
				Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.			
31	37	RC	7		★	○●									
05	8	W	2			○●	★●								
30	34	RC	7		○	●	★								
18	37	S	6				○	★●							
15	8	S	3			○		●	★						
36	44	RC	10					○					●	★	

[Index] ★ Move in ○ Start of construction ● Completion of construction

Implementing entity	Independent standard	Application of standards for providing public housing, etc. (consideration standard) (○: Applicable, △: Partially applicable, ▲: Relaxed regulation applicable, X: Not applicable)						
		Thermal	Sound insulation	Deterioration	Maintenance and management	Sick house	Barrier free (residential)	Barrier free (common facility)
ST Prefecture		▲	▲	▲	▲	▲	▲	▲
NG City	○	—	—	—	—	—	—	—
YC City		X	X	X	○	X	▲	○
KM City		X	X	X	△	X	△	△

Figure 2: Example of applying standards for rented public housing (stock type)

Based on this, and taking into account that the number of housing units required as housing for reconstruction depends on the scale of the disaster, and the number of available units is affected by the local rental housing situation, the drafted criteria set two levels of standards: basic standards as housing for reconstruction (presenting

the basic concept of performances and required levels), and relaxed standards to meet the temporary demand that occurs after a large-scale disaster. The drafted criteria are designed to make it easy for local governments to set criteria for selecting target housing to be converted into rented housing for reconstruction, depending on the scale of the disaster and local situations.

4. Conclusion

In the future, the outcome of this research is expected to be used to formulate criteria for judgments and contribute to the realization of early housing stability in the event of a disaster by disseminating it to local governments.

* The outcome of this study has been obtained through the implementation of the PRISM project.