

# A Survey on the Dwelling Conditions of Community Houses from the Climatological Point of View

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(Received January 17, 1951)

## Abstract

We surveyed the dwelling condition of the houses at Toyama Heights in Tokyo from the climatological point of view using the appraisal method for measuring the quality of housing and we appreciate,

- 1) the community consciousness of the occupants,
- 2) the present and future style of living of the occupants,
- 3) and the relation between the privacy of the houses and climate.

## 1. Introduction

We cannot expect the present serious housing shortage will be removed in the near future, because the limited resources of the people prevent them from building houses either for their own use or letting.

Therefore house-building program should be carried out as a part of social planning, such as the government's community housing program.

Then, what is the best condition to enable people to enjoy healthful and civilized life under the climatic and social environments?

## 2. Procedure

The houses at Toyama Heights were constructed in March, 1949, partly using materials released by the U.S. Army. There are one thousand of them in all. (The size of the houses is either 9 tsubo or 13 tsubo.) We interviewed the occupants of the houses which were sampled at random at 1 to 5 sampling ratio.

In the first place, we surveyed the conditions of the houses, and the following results were obtained:

### Favorable Replies

1. Sunny	11.2
2. Quiet	4.5
3. Kitchen convenient	10.3
4. Water closet sanitary	17.2

### Unfavorable Replies

1. The site inconvenient	4.3
2. Public facilities inconvenient	2.0

3. Road bad	6.2
4. The arrangement of rooms inconvenient	14.8
5. Workmanship poor	11.2
6. Windows poor and inconvenient	2.7
7. Closets narrow	1.7
8. Front door narrow	6.2
9. Sound protection insufficient	5.2
10. The front and kitchen door common	2.5
	100 %

The fundamental purpose of our research was to find the dwelling conditions that are most suitable for the climate of this country.

However, dwelling conditions are greatly affected by the prevailing economic as well as social conditions.

Therefore we had to conduct our study with a broader perspective, looking into problems such as:

1. Good public facilities must be made available to enable community houses to function properly. It is also vital that the occupants be community-conscious
2. What importance do people place on the question of privacy in their daily life? For while secluding their houses from outside by means of high walls and other barriers, the Japanese utterly neglect privacy within the household.
3. Which of the two styles, Western or Japanese, is the more suitable?

### 3 Results

1. To investigate the occupants' community consciousness, housewives and other female heads of household were selected and asked to answer this question. We prepared beforehand standard gradings for expected replies.

As a rule, age and social position influence the people's community consciousness. In order to avoid such influence in our study, we have conducted an analysis of variance based on three factors of occupation, age and grade.

The data are given as follows:

From the following data we may say that these people have comparatively higher community consciousness.

Occupation	Day-labourers			Technicians			Government Officials			Salaried men			High-salaried men			Professional men			Shop-owners			Total			
	2+	1	0	2+	1	0	2+	1	0	2+	1	0	2+	1	0	2+	1	0	2+	1	0				
Age																									
10 Age	0	0	0	0	0	0	1	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5
20 "	1	1	0	2	6	1	5	9	0	14	8	2	1	3	1	0	4	0	0	3	0	0	3	0	61
30 "	0	2	1	3	4	1	1	6	1	9	8	1	6	0	0	5	3	0	0	0	1	0	0	1	52
40 "	1	3	0	1	3	0	2	2	0	0	2	0	2	1	0	0	2	1	0	0	0	0	0	0	20
50 "	1	2	1	0	2	0	1	1	1	3	6	0	0	0	0	1	1	0	0	0	0	0	0	0	20
60 "	0	0	0	0	0	0	0	1	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	3	8	2	6	15	2	10	20	2	27	29	4	9	4	1	6	10	1	0	3	1	0	3	1	163

Source of variation	Sum of squares	Degree of freedom	Mean Square
Occupation	112. 9127	6	18, 8187**
Grade	70. 2492	2	35. 1246**
Age	131. 9921	5	26. 3984**
Occupation-Grade Interaction	52. 1397	12	4. 3602*
Grade-Age Interaction	51. 3222	10	5. 1322*
Occupation-Age Interaction	105. 2202	30	3. 5073*
Occupation-Age Grade Interaction	120. 2988	60	2. 0049
Total	644. 1349	125	

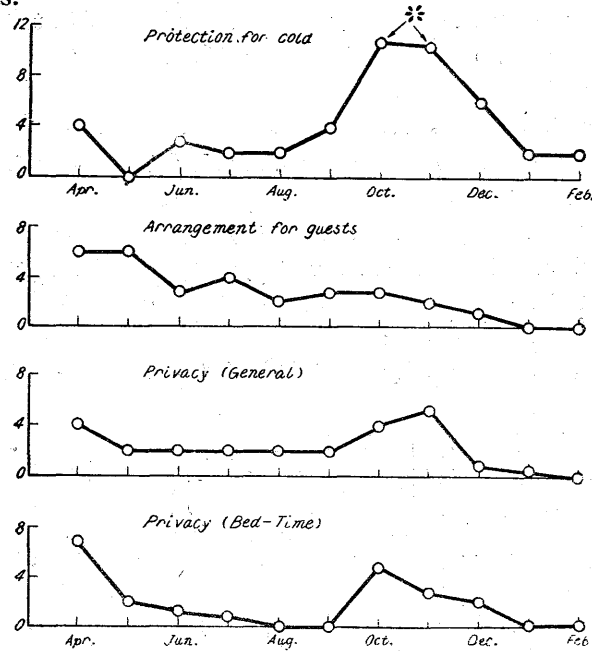
	Grade	Number of Occupants
High Community consciousness	} >+2	61
Moderately high community consciousness		
Low community consciousness	} +1~0	89
	} -1	13

2. The investigation on the reason for partitioning the room.

The government built houses at Toyama Heights are all one room structures. As a result the tenants have invariably partitioned their room. Now what were the reasons

for doing so? Was it for privacy purpose—both general and bed-time? Was it done as a protective measure against cold or was it to have another room for guests?

We asked above questions in our interviews, and the results are illustrated below in graphs.



(Note):

The horizontal lines indicate the months in a year (1949-50); the vertical lines indicate the number of houses whose room had been partitioned.

The asterisk means that the seasonal variation was significant, because

$$F_0 \equiv \frac{(N-k) \frac{1}{II}}{(k_i+1) \left(1 - \frac{1}{II}\right)} > F(0.05) \begin{matrix} n_2 = N - k_i \\ n_1 = k_i + 1 \end{matrix}$$

N: Total Number of partitioning

$k_i$ : The number of partitioning in  $i$  month

As shown in the illustrations most people gave their reason for partition as protection against cold.

The peak of the curve lies in October and November, the period during which the decreasing rate of mean diurnal temperature is the greatest of the whole year.

Next we investigated the relationship between the number of partitioned rooms and composition of the family.

Constitution of family	No partition	The reason of partition			Total
		Protection against cold	Arrangement for guests	Privacy	
A married couple only	8	3	6	1	18
With children younger than 12 years old	17	31	17	12	77
With children older than 12 years old	11	10	2	16	39
With brother or sister	3	2	1	7	13
With parents	5	2	1	6	14
Family without a married couple	10	6	2	3	21
Total	54	54	29	45	182

$$\chi^2 = 37.0538$$

$$F_0 = \frac{\chi^2}{n} > F \begin{matrix} n_1 = 15 \\ n_2 = \infty \end{matrix} (0.05)$$

$$n = 3 \times 5$$

Where the family consist of one married couple or unmarried people only, the number of no-partitioned cases was the largest. Couples with children less than 12 years old partitioned their room as a protection against the cold. But privacy was the greatest reason for partitioning for households of married couples with children older than 12 years, or living together with brothers and sisters or with their parents.

### 3. The investigation of the styles of living

In the following table the vertical column shows the present living style and the horizontal row shows the living style the people desired in the future.

For example, the figure 18 in the illustration below indicates the number of Japanese-styled houses, but whose occupants desire style in the future.

Future Present	Japanese	Western	Combined	Total
Japanese	83	18	20	121
Western	0	10	2	12
Combined	6	22	21	49
Total	89	50	43	182

$$\chi^2 = 59.6044$$

$$F_0 = \frac{\chi^2}{n} = 14.9011 > F \begin{matrix} n_1=4 \\ n_2=\infty \end{matrix} (0.05)$$

The table also shows that at Toyama Heights many people live in Japanese style at present (see the column of totals) but in the future more people will change their living style into western (see the row of totals).

At Toyama Heights the government had built the houses without "tatami" floors with hope that wooden floors would be preferred.

Why have the occupants made alterations in the house? The replies were as follows.

Living style Present→Future	Reason of living style	%
Japanese→Japanese	Habit	39.8
	Special attachment to tatami	9.6
	No space for bed	10.8
	Lack of furniture	18.2
	Climatic reason	10.8
	Other reasons	10.8
Western→Western	Cleanliness	30.0
	Convenience	40.0
	Accept the style as is	30.0
Combined→Combined	Habit	4.5
	Convenience	4.5
	Accept the style as is	4.5
	Lack of furniture	52.2
	Climatic reasons	9.0
	Cleanliness	18.0
	Other reasons	7.3

#### 4) Conclusions

From our investigation we may say:

1. At Toyama Heights the people have comparatively higher community consciousness.
2. 70.2 % of tenants have partitioned their room. The greatest number of people gave protection against cold as their reason for partitioning. But if in their families there were children older than 12 year were living together with brothers and sisters, or their parents privacy was the fundamental reason for partitioning.
3. If in the future their standard of living improves, the style of living may change, say from Japanese to western style.