

A Survey on Facades of Buildings in a Hot Spring Village Where a Voluntary Agreement Exists for Preserving Townscape

Takafumi Inoue*, Keiji Kawai, Hiroshi Ueda

Graduate School of Science & Technology, Kumamoto Univ.

*corresponding author: kumamoto_arch_ino29tak@yahoo.co.jp

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A survey was conducted for the façade of the buildings in Kurokawa Spa, a hot spring resort in Kumamoto prefecture located southwest of Japan, where a voluntary agreement for preserving its rural townscape has been developed by the residents' association. The survey consists of a field research on the color and material of the façade elements, an interview to the owner of the hotels and shops, and a field experiment of subjective evaluation of the façade of the buildings. The relationships between positive and negative evaluation and the attribute of the façade elements were analyzed. Then the results were examined in terms of compliance with the agreement. As a result, most of the elements could be regarded as within the agreement. Yet, with regards to the color, the owners of the hotels and shops often expressed their negative impressions to particular types of the elements such as signboards or modern materials of walls because of their color, as they seemed to have rather common criteria for judgment whether the color matches with the townscape of Kurokawa.

1. Introduction

Townscapes with traditional buildings are the representation of the cultural property of communities though these are rapidly being substituted by those of global style due to the mismatch with modern building technology or lifestyle. For example, in Japan, traditional residences, built against warm and humid summer climate with natural ventilation as the primary importance, are hardly suitable for the use of air-conditioner or the noisy urban environment.

Still, the local culture, formed in the long time in the society, is considered to be a social identity of the belonging people and therefore essential for the people. For maintaining the local culture, conservation of traditional townscape must be one of the effective ways. Especially for resorts, typically such as spa resort in Japan, where people stay for a short time period away from daily modern life, traditional townscape would be a merit for visitors.

In this study, a hot spring resort is studied with its own town planning agreement that guides mainly colors and materials of buildings. Kurokawa hot spring resort, located in Kumamoto prefecture, southwest of Japan, is one of the most popular hot spring resorts in Japan. Since 1980s, hotel owners association in the resort started to plant various types of trees in their gardens to provide a thicket and to regulate signboards in the area. This movement resulted in the establishment of a voluntary agreement of the local community for conservation of townscape in 2002. The agreement consists of guideline of the use of colors and materials for the buildings including hotels and stores and encouragement for natural green gardens. In the following six years 13 buildings including

Japanese-style hotels and stores were built or renovated and they were requested to observe the agreement.

In agreements or local laws for townscape, generally, there is a problem of how aesthetics could be regulated. By this problem, the expressions tend to become abstract and judgment of deviation is often difficult. Consequently it is necessary to discuss the effectiveness of the regulation. In this study, we examined the relationship between the colors and materials use for the facades of the stores and subjective evaluation of both hotel owners and visitors, referring the related items of the agreement.

2. Outline of research

28 stores, almost all the stores along the main street of this area including souvenir shops, sweet shops, café and so on (Table 1), were studied by way of color measurements and owner and visitor questionnaire.

Visual colorimetry was carried out for each part of the façade of these stores, such as outer walls, signboards or display, based on Munsell color system. An example is shown in Fig. 1.

Subjective evaluation of the façade of the stores was examined through the questionnaire. Two groups of subjects that were 19 members of hotel owners' association of Kurokawa spa and seven college students of architecture who were regarded as visitors were participated. The visitors were asked to walk around visiting all of the stores and to evaluate their façade with the following way.

- 1 For each of the stores they were asked to point out any elements of the façade if they felt good or bad impression for them.
- 2 Then they were asked to answer to a structured open-ended question requesting them to refer 1) what kind of impression you felt to 2) which property of 3) which element of the façade.
- 3 Finally they evaluated overall impression of the façade subjectively using two seven-step scales of preference and harmony with the townscape.

19 owners, on the other hand, didn't actually visit the stores but were only presented with the picture of each of the stores because they were assumed to have sufficient knowledge about the buildings and the townscape. Looking at each of the pictures, they conducted the same evaluation task as the visitors did for all the stores.

3. Result of subjective evaluation

Expressions obtained by the structured open-ended question are classified as "element," "property," and "impression." For each of them, similar expressions were grouped into categories. Then number of expression was counted for each of the categories separately for owners and visitors.

3.1 Outer wall

Corresponding properties of the outer walls with positive or negative evaluation answers were examined (Tables 2 and 3). In the answers of the owners, the property was not answered in the most frequent cases of positive answer. This might mean that overall impression or existence itself was evaluated. Color followed next to no answer. With negative evaluation, color was the most frequent and damage and no answer followed. Note that there were positive comments for damaged outer walls if natural materials were used. In the answers of the visitors, material was most often answered and color followed with the positive evaluations, and with the

negative evaluations, color was most often and material and damage followed.

Next, types of impression attached to the property of the wall were examined (tables 3 and 4). Harmony and nostalgia were most often referred with positive evaluation in the answers of both of the owners and visitors. Harmony was considered to refer matching/mismatching with the traditional townscape of Kurokawa. With negative evaluation, aesthetics or dismalness were frequently associated. Also concrete suggestions were sometimes seen such as "color should be changed" or "should be re-painted," and these were categorized as suggestion.

Consequently, it was found that the outer walls were evaluated mainly for their colors and materials with regard to such impressions of harmony, aesthetics and nostalgia.

3.2 Advertisement

On the façade of the stores, various kinds of advertisement were attached such as shop sign, billboard or flags. These are often criticized as disturbing townscape,

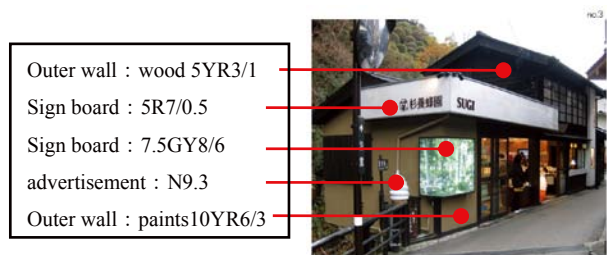


Table1. Number of answer for type of store

type of store	total
souvenir shop	14
restaurant	4
snack bar	4
pub	3
others	3

○ evaluate of total

3 2 1 0 -1 -2 -3

good bad

○ evaluate of parts

estimation	what kind of impression you felt to
good / bad	
which property of	which element of the façade

Fig1. Example of form and colorimetry

Table 2 Number of answer for properties of outer walls (owners)

Positive	N	Negative	N
(no answer)	8	color	14
color	7	damage	8
damage	3	(no answer)	5
shape	2	material	2
others	2	overall	2
Total	22	Total	31

Table 3 Number of answer for properties of outer walls (visitors)

Positive	N	Negative	N
material	32	color	15
color	12	material	11
design	4	damage	9
shape	2	design	5
		others	6
Total	50	Total	46

Table 4 Number of answer of impression of outer walls (owners)

Positive	N	Negative	N
harmony	7	aesthetics	8
nostalgia	4	suggestion	6
character	3	dismalness	3
suggestion	2	harmony	3
others	6	others	11
Total	22	Total	31

Table 5 Number of answer of impression of outer walls (visitors)

Positive	N	Negative	N
nostalgia	22	harmony	22
harmony	13	aesthetics	11
aesthetics	5	locality	4
locality	4	suggestion	3
others	6	others	6
Total	50	Total	46

and assumably, there more negative comments for the advertisement items than positive ones. Also the owners expressed more negative impression (53 out of 62) than visitors did (40 out of 77). In the answers of the owners, again no property was written most often with regards to negative evaluation. Probably existence of them itself was negatively evaluated. Lack of description of property was not seen for the visitors and this may be because they were students and evaluated analytically or followed seriously to the instruction. For both groups, color was frequently evaluated negatively. Not so many but color was referred with positive evaluation. With respect to impression, harmony and aesthetics were most often referred to negative evaluation. Advertisement tends to be vivid or different color with the background to attract attention so these results seemed natural. In the answers of visitors, locality was also used for describing both positive

Table 6 Number of answer for properties of advertisements (owners)

Positive	N	Negative	N
(no answer)	4	(no answer)	30
color	2	color	14
material	2	shape	4
damage	1	size	3
		others	2
Total	9	Total	53

Table 7 Number of answer for properties of advertisements (visitors)

Positive	N	Negative	N
material	15	color	17
color	7	shape	4
design	4	design	4
shape	3	material	4
arrangement	3	others	11
(no answer)	3		
others	2		
Total	37	Total	40

Table 8 Number of answer of impression of advertisements (owners)

Positive	N	Negative	N
(no answer)	3	harmony	15
harmony	2	aesthetics	14
aesthetics	2	suggestion	5
suggestion	2	(no answer)	5
		others	14
Total	9	Total	53

Table 9 Number of answer of impression of advertisements (visitors)

Positive	N	Negative	N
nostalgia	8	aesthetics	17
aesthetics	7	harmony	9
harmony	6	locality	6
locality	6	dismalness	2
others	10	texture	2
		others	4
Total	37	Total	40

and negative evaluation and this was considered to represent visitors' expectation to the local resort.

4. Agreement and evaluation

Relationships between colors and materials of the façades and owner and visitors' preference are discussed here with reference to the agreement.

4-1 outer wall

For the outer wall, the agreement refers that "achromatic or low chroma coloring should be used as basic color, such as black, gray, white, brown or beige." From the result colorimetry, in general, colors of low chroma of R, YR, Y hues or N occupied major part of the outer walls. These colors can be regarded as within the color range of the agreement. As supposed by the color used, most of the walls didn't receive negative comments by the subjects of both groups. However, there were a few walls of brown or beige evaluated negatively. One of the reasons for this was assumed to be rather modern materials and structure of the walls, so the materials were examined.

For the material of wall, the agreement refers that "the wood, the earth wall, the plaster, or similar materials should be used as far as possible." Actually used materials of the walls were painted panel (28), timber (14), plaster (11), and others (7). The Munsell hue and chroma of the walls are plotted in fig. 2. The chroma and value are plotted in fig. 3 with different symbols for different materials. The colors of the timber walls were generally low in Munsell value and chroma. The chromas of plastered wall were either around 0 (mortar) or 4 (earth walls). The colors of the painted panels, most of them seemed to imitate plaster wall, varied more widely than the others. In the subjective evaluations of the walls, the painted walls often received negatively when the color was similar to those of plaster. Consequently, it was suggested that colors and materials should be designed not independently but with those combination.

4-2 Signboard

Color: For the signboard, the agreement refers the minimum use, using decent materials such as timber, harmonious colors with the streetscape, and design matched with the image of Kurokawa. This is somewhat ambiguous expression about color because only relative colorings are referred but it can be regarded that the similar colors should be used as basic colors.

The property and evaluation of advertisements were summarized in table 10. The result of colorimetry indicated that the Munsell hue of N (achromatic color) was most often used and R and YR of low chroma were followed, which were regarded as within the agreement. On the other hand, there were some colors that didn't appear with the outer walls such as GY, G, B, GB, PB, and so on. Also there were 12 advertisements whose chroma was more than 8. The advertisements with such deviation from colors of the walls were often evaluated negatively.

Materials: The advertisements were made of either plastic, cloth, aluminum, or others. Plastics tended to receive negative comments when the area was large or high chroma was used. As for fabric most of the stores had flags with the name or logo of their shop or goods for sale and tended to be rather vivid color for attention attracting. Flags were referred as a

possible type of advertisement in the agreement, though minimum use recommended, so additional consideration should be made for them.

5. Conclusive comments

Through the field survey, relationships between the property of elements of façade and subjective evaluation were discussed in referring to the townscape agreement. The major results were that colors could be negatively evaluated though the color was within the agreement if modern material was used. Advertisement tended to have high chroma and often received negative evaluation especially when those were large or those colors were different to that of outer walls. Therefore size and style of advertisement should be discussed. Based on those discussions, more effective agreement will be fostered.

Table 10 Property and evaluation of advertisement

type of material	type of advertisement	Munsell color	area cm ²	property for evaluation*	
				color	others
plastic panel	store name	N/9.3	27		
	menu	N/1.5	27		×1
	store name	N/8.5	30		
	store name	N/9.3	42		
	store name	N/8.7	50		
	store name	N/2	54		
	store name	7.5R/4/8	63	×1	×4
	store name	N/9.3	82		
	store name	7.5GY/8/6	197	×3	×7
aluminum	store name	5R/7/0.5	408	×2	×1
	store name	10G/3/6	7.5		
	store name	10R/5/14	8.2	×1	
	goods poster	5G/4/8	55		
fabric	store name	10R/5/10	97	×1	×1
	shop curtain	7.5R/2/6	20		
fabric	flag	5Y/8/13	72	×2	×6
	flag	10GB/5/2	72	×2	×5
	flag	7.5R/2/6	72	×1	×2
	flag	N/8.5	72		
	flag	2.5PB/4/10	72		×2
	flag	10R/3/6	72		×2
	flag	10GY/8/1	72		×2
	shop curtain	2.5GY/8/8	84	×1	
	store name	2.5PB/3/4	98		○1
	store name	N/9	108		
	store name	5R/2/12	200		
	shop curtain	2.5Y/8.5/2	218	○1	×1
	shop curtain	10B/6/6	218	○1	×1
	store name	N/8	221		
	plastic sheet	goods poster	5GY/7/4	18	
flag		2.5PB/8/4	46		
goods poster		5R/9.2/1	140		×3
paper sheet	goods poster	10R/5/14	17		
	store name	7.5R/6/10	18		
	goods poster	N/3.5	38		×2

* ○: positive, ×:negative.

REFERENCES

[1] T. Koga. et. al., Participatory research of townscape, using “Caption evaluation method” -Studies of the cognition J.Archit.Plann. Environ. Eng., No.517, 79-84, 1999 (In Japanese)
 [2] T. Koga. et. al., User’s evaluation of living environment in welfare facility for the elderly with caption evaluation method -User’s evaluation of living environment in welfare facility for the elderly Part1-, J.Archit.Plann., No.600, 33-39, 2006 (In Japanese)
 [3] J. Kawakita, KJ Method, 1986 (In Japanese)

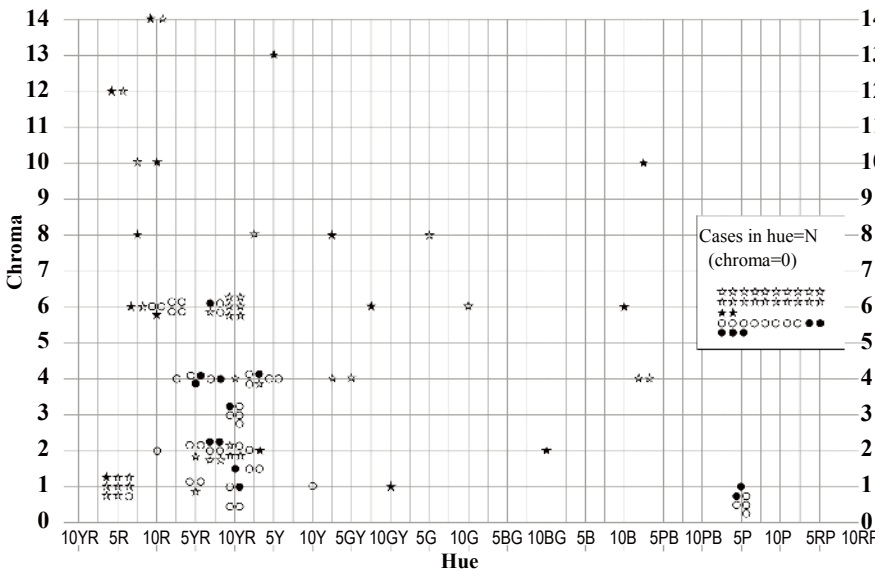


Fig. 2 Hue-chroma distribution of outer wall and sign boards

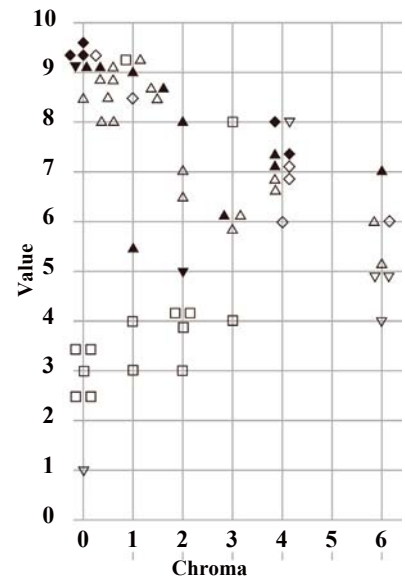


Fig.3 Value-chroma distribution of walls by material

Symbols are common for Figs.2 and 3. ○:outer wall ☆:advertisement. Materials; □:timber, ◇:plaster, △:painted panel, ▽:others. Filled symbols for negative evaluation.