

“Review on the Bhutanese Architecture Guideline”

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Abstract: Bhutan’s isolation from the external forces of modernization endured till the 1970s. The essence of traditional architectural elements in the form of scale, proportion, details, or use of materials were glorious, depicting the rich architectural heritage. However, owing to modernization, the import of modern materials and labor, the dependence on modern technology, ignorance of traditional Bhutanese architecture and the shrinking number of artisans have resulted in the deterioration of our traditional building styles and practices. Ultimately in 2002, “Traditional Architecture Guidelines” was published in an attempt to streamline the construction of various buildings with the appropriate architectural style which was then updated with the “Bhutanese Architecture Guidelines 2014”. The study on the effects of the guideline was initiated. A mixed-method, convergent design was adopted for the study. Quantitative data were gathered from 100 architects and qualitative visual survey inferences were drawn from 46 case buildings. Findings revealed that the institution of the guideline has brought about positive transformation to the built environment of Bhutan, although with few glitches in terms of failure to justify traditional entitlement, ambiguity in the guideline and ambiguity in the traditional practices. Likewise, the majority of the respondents support the review of the existing guideline. The study recommends a more comprehensive and unequivocal guideline, with room for flexibility to foster innovation and creativity, yet preserving the rich architectural heritage of Bhutan.

Keywords: Bhutanese Architecture Guidelines (2014), visual survey, architecture, guideline, questionnaire

Introduction

Bhutan has remained in isolation until the 1970s sustaining its centuries-old illustrious culture and tradition (Saboo, 2016)- one component being the long-established traditional architecture (Chettri, Thinley, & Koirala, 2020), free from external influences. The essence of traditional architectural elements in the form of scale, proportion, details, or use of materials was glorious. It all changed with Bhutan getting engulfed in the never-ending race of modernization and urbanization like any other nation. This led to the construction of multi-storied buildings and the much-needed momentum was provided by the easy accessibility of materials and labor across the border towns of Bhutan and India. Consequently, buildings sprouted which were out of context in terms of cultural, climate and as well as local resources of Bhutan (Aia & Bertaud,

1976). The heritage at that time was in danger of being eroded with the import of cement and steel and architectural concepts alien to the kingdom's culture and natural environment (Department of Urban Development and Housing, 2002).

Ultimately in 1993, "An Introduction to Traditional Architecture of Bhutan" was published and it served as an important reference on the Bhutanese architecture. During this time, efforts were undertaken to fuse the traditional architecture with modern material and methods, however, results were not encouraging owing primarily to the absence of any written guidelines. As a result, erstwhile National Urban Development Corporation which was mandated to promote the architectural heritage of the Kingdom published the first-ever guideline, "Traditional Architecture Guidelines" in an attempt to streamline the construction of various buildings with the appropriate architectural style. The guideline emphasized the organization of traditional features, their modes of construction, *thoptbang* (entitlements) and minimum requirement of traditional features depending on the type of building (Department of Urban Development and Housing, 2002)

With the changing times, there was a need for a comprehensive guideline that was beyond the scope of the previous guideline. Subsequently, in 2014, the Ministry of Works and Human Settlements published the Bhutanese Architecture Guideline intending to support the construction, repair and restoration of traditional structures and construction of modern buildings that are harmonious with traditional architectural design and proportion (Ministry of Works and Human Settlement, 2014).

The institution of the necessary statutory guideline by the Royal Government of Bhutan has possibly brought about positive transformation to the built environment of Bhutan. Conventionally, the building regulations have a strong correlation with the positive benefits and they should be reasonably rigid and adequately flexible (Nagpure, Sulekar, & Survase, 2016)

Thus, this study attempts to understand the impact of the institution of the guideline and also presents a need analysis for the possible review. The study revolves around the following main research questions:

- What is the possible transformation/impact brought about by the institution of the architecture guidelines?
- What recommendations, if any, are necessary to the existing Bhutanese Architecture Guidelines?

Method

This study employs a mixed-method design (convergent design), reaping the advantage of both qualitative and quantitative methods in addressing complex problems. In a convergent design approach, the qualitative and quantitative data can be compared for data validation or data triangulation (Demir, 2018) as illustrated in figure 1.

Non-probability purposive sampling method was adopted for the survey questionnaire in part A. A total sample size of 229 (at the time of administering the questionnaire) comprising of architects who were registered with the Construction Development Board of Bhutan were invited through email to participate in the survey. Visual survey/case study in part B was undertaken in Thimphu and Paro as they portrayed the balanced mix of buildings that came before and after the guideline of 1993. Thus, a purposive sample size of 46 buildings from different regions of Thimphu and Paro was identified for the survey.

The core assumption of this form of inquiry is that the integration of qualitative and quantitative data yields additional insight beyond the information provided by either the quantitative or qualitative data alone (Creswell & Creswell, 2018).

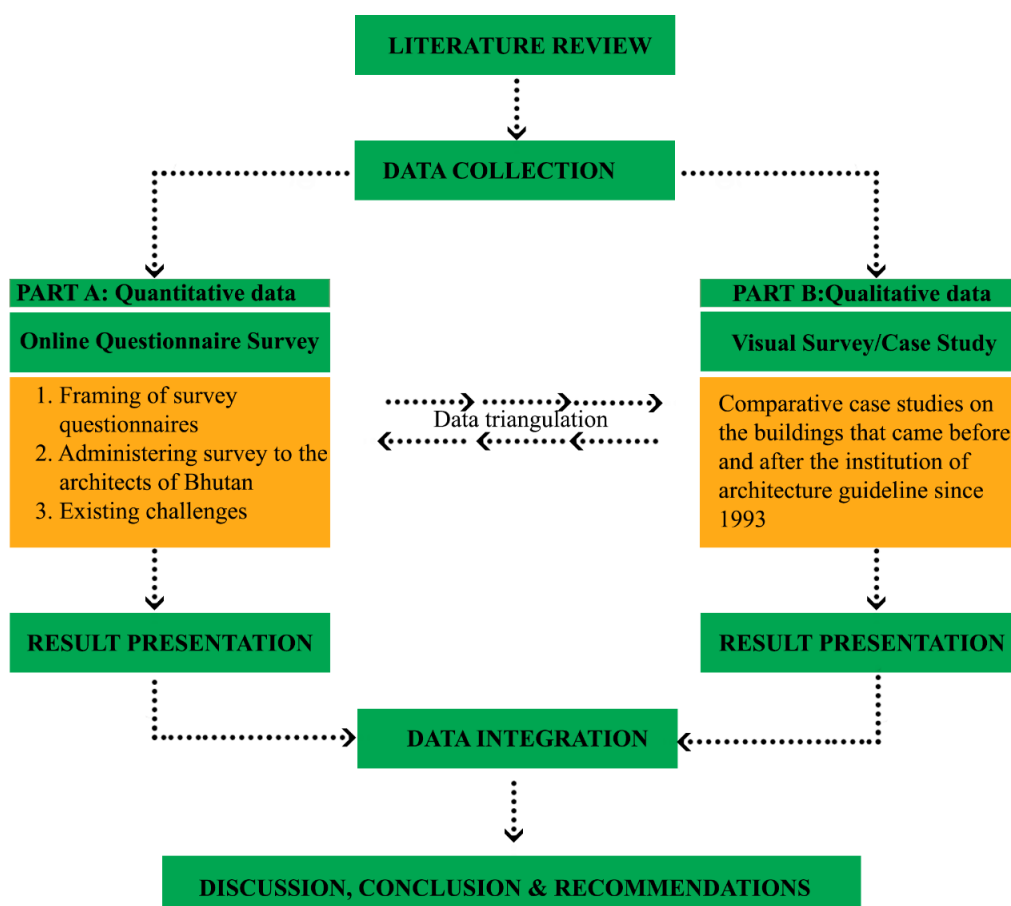


Figure 1. Methodology flow chart

Results

Results from the questionnaires

Online questionnaires were administered to 229 architects out of which 100 responded. Figure 2 illustrates that the majority of the workforce is working in the private (48%) which is followed closely by 35% in government organizations. The remaining 16% of them are working in other categories such as non-governmental organizations (NGOs).

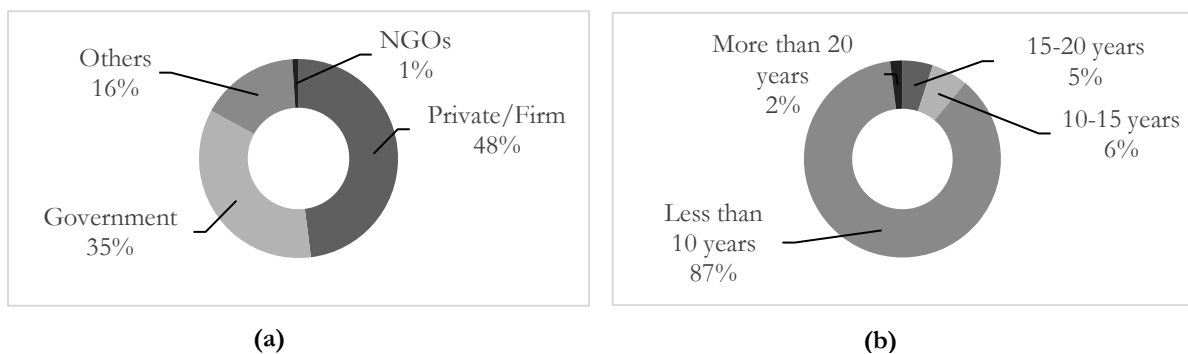


Figure 2. (a) Q1- Working organization/company of the respondents; (b) Q2- Working experiences of the respondents.

In addition, Bhutan has relatively young working professionals (less than 10 years) which accounts for 87% while only 2% make up for the work experience above 20 years (Figure 2b). That settles 6% and 5% only for the middle career professionals comprising of work experience 10-15 years and 15-20 years respectively.

On the question posed regarding the dilution of the traditional architectural practices (Figure 3a) due to the import of modern materials, methods and laborers, 46% and 16% of the respondents agree and strongly agree respectively. In contrast, 31% rated disagree while 7% chose strongly disagree on the Likert scale for the same question.

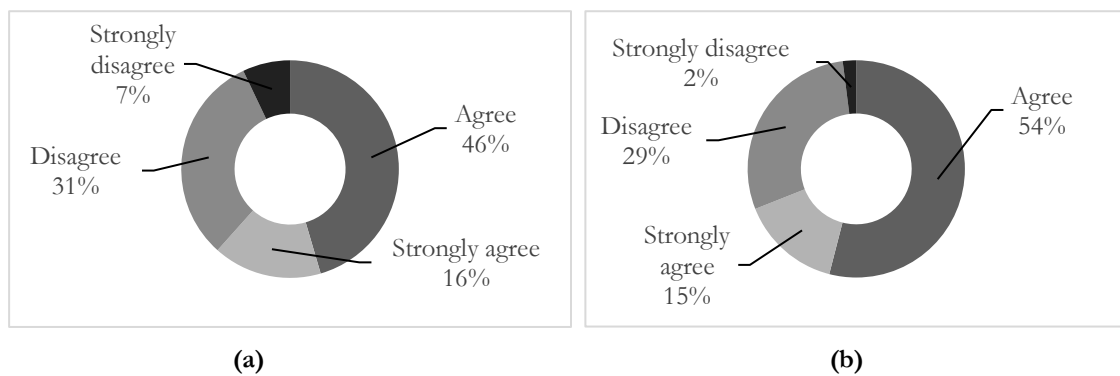


Figure 3. (a) Q3- Dilution of traditional architecture due to modernization; (b) Q4- New materials and methods are causing ambiguity in the traditional building style and practices.

Similarly, the majority of the survey participants (54%- agree, strongly agree- 15%, Figure 3b) are in favor of the ambiguity being caused to the traditional building entitlement owing to the adoption of new materials and methods. Meanwhile, 29% of them disagree with the same and a minority of 2% strongly disagree.

On the question posed on the understanding of the BAG 2014 (Figure 4a), the majority of the participants indicated that they are well-versed with the Bhutanese Architecture Guidelines (65%-agree, 29%-above average), indicating only a small minority of 6% whose understanding is below average. Subsequently, when asked about the ambiguity faced/noticed while using the guideline, nearly 67% of them cited agree and 11% strongly agree, but some have voiced their disagreement with the statement (disagree- 21%, strongly disagree-1%).

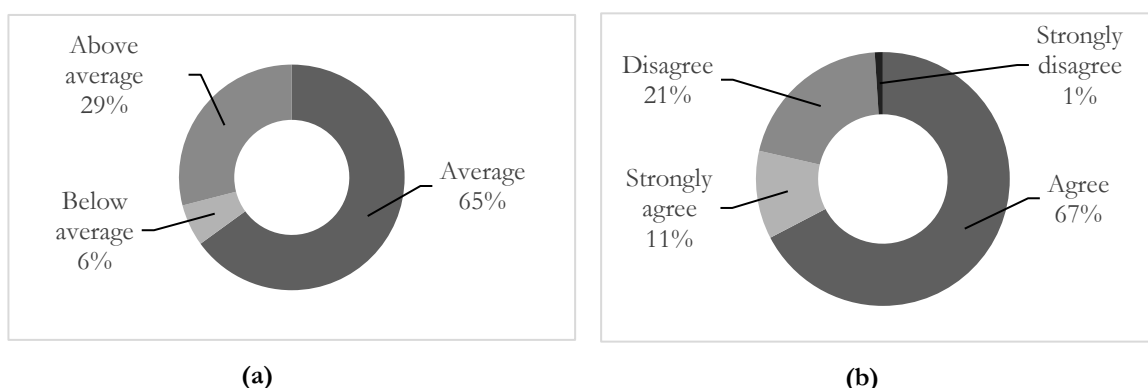


Figure 4. (a) Q5- Understanding of BAG 2014; (b) Q6- Ambiguity faced/noticed in BAG 2014

Staggering 88% (agree-78%, strongly agree-10%) of them approve the harmonious relationship of BAG (2014) with the traditional architecture design and approach (Figure 5a). In addition, it has been pointed by Figure 5b that the institution of the BAG 2014 has brought about positive transformation (67%-agree, 8% strongly agree) to the built environment of Bhutan while about 25% of them seem to disregard

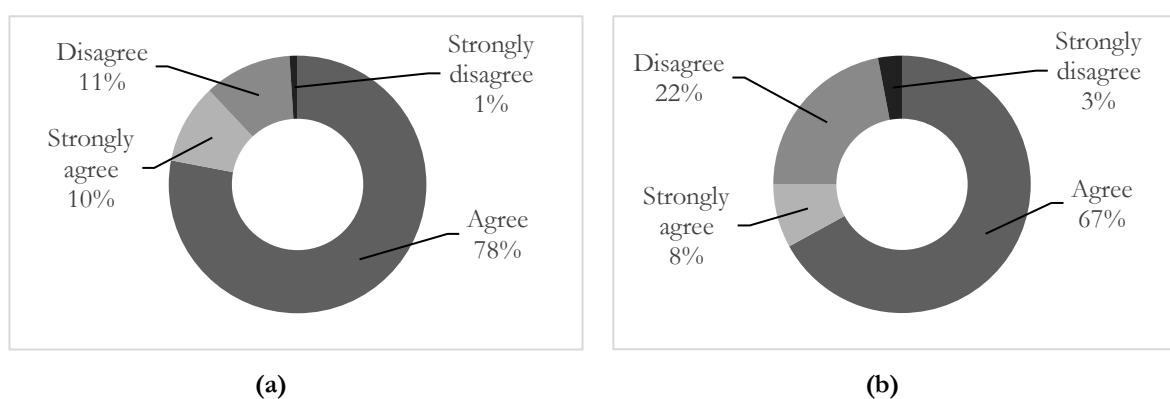


Figure 5. (a) Q7- BAG 2014 is harmonious with traditional architecture design and proportion; (b) Q8- Institution of BAG 2014 has brought about positive transformation to the built environment of Bhutan.

As evident in Figure 6, the majority of the architects rated strongly agree (45%) and agree (42%) on the need for the review of the existing BAG 2014, revealing a strong urge for the review as it was published back in 2014.

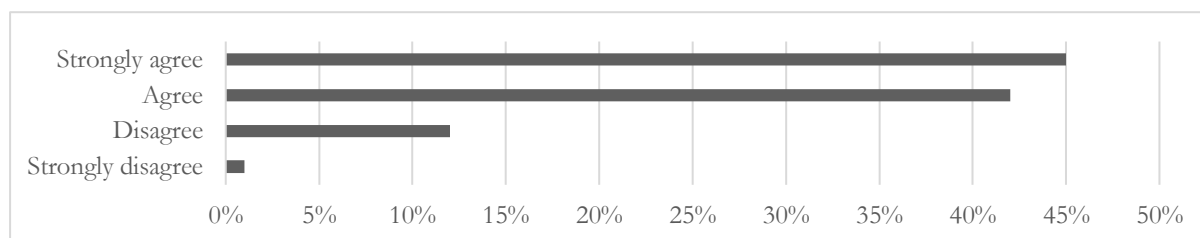


Figure 6. Q10- Need for the review of the guideline.

Lastly, the survey respondents were asked to provide recommendations to be incorporated in the next possible review of the guideline. Out of 100 respondents, only 50 have provided comments in the response section, out of which 8 of them are deemed irrelevant as they are mostly single text or incomprehensible responses. Hence, 42 valid responses are sorted out under the following categories in figure 7.

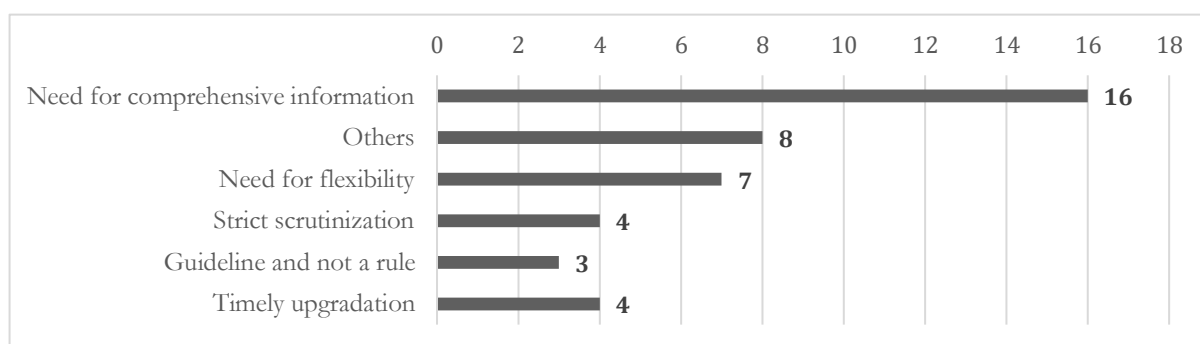


Figure 7. Q10- Categories of the responses with frequency

Results from the visual survey

The visual survey was carried out at the two western districts of Thimphu (32) and Paro (18) which have experienced booming construction activities since Bhutan’s exposure to the outside world. The buildings surveyed were categorized under the following:

- Buildings before 1993 (Buildings that came before the publication of the first-ever Traditional Architecture).
- Buildings after 1993 (Buildings that came after the publication of the Traditional Architecture and subsequently the first-ever Traditional Architecture Guideline in 2002)

Table 1. Survey details

Location	Timeline	Number of buildings
Paro	Buildings before 1993	7
	Buildings after 1993	11
Thimphu	Buildings before 1993	12
	Buildings after 1993	16
Total		46

The survey is targeted only on the residential buildings and more specifically on the building component, *rabsel* (Bhutanese bay window).

The houses built before 1993 mostly comprise a typical example of traditional houses. It exhibits the styles that avoided most decorative/intricate elements such as *zhu*, *norbu bagam* and even *phana* which required skillful craftsmanship. The majority of these houses are load-bearing structures, constructed by *zompoens* (master carpenter) using traditional building materials such as timber, stone and rammed earth. In addition, they showcase the true proportion of *rabsel* and cornices and are in accordance with the traditional guidelines.

Out of 19 buildings visually surveyed, 14 of them depicted the true size and proportion of the *rabsel* and other remaining 5 of them had slight variations. However, in the case of buildings that came after the institution of the guidelines, the majority of the buildings (16 out of 27) deviated from the traditional requirement of the *rabsel* and the issues are summarized in Table 2.

Table 2. Building deviating the requirements of the Bhutanese Architecture Guidelines, 2014

Sl No.	House No.	Remarks/Inferences
1	House 5a	Side elevation of the <i>rabsel</i> not appropriate
2	House 12a	<i>Kachen</i> and <i>zhu</i> not inappropriate size and entitlement
3	House 13a	<i>Bogh</i> present in the <i>rabsel</i> window
4	House 14a	<i>Bogh</i> present in the <i>rabsel</i> window
5	House 15a	Minimal traditional features, the correct order of entitlement missing in the cornices
6	House 18a	Minimal traditional features
7	House no.13	Minimal traditional features
8	House no.14	Habitable space above the <i>phana</i>
9	House no.15	Minimal traditional features
10	House no.16	<i>Bogh</i> not appropriate in size and proportion

11	House no.17	Window <i>Bogh</i> not appropriate in size and proportion
12	House no. 18	Minimal traditional features
13	House no.20	Problem with the overall proportion of the cornice,
14	House no. 21	<i>Bogh</i> not appropriate in size and proportion, <i>Bogh</i> present in the <i>rabsel</i> window
15	House no.22	<i>Kachen</i> and <i>zhu</i> not appropriate,
16	House no.25	<i>Bogh</i> present in the <i>rabsel</i> window cornice not appropriate
17	House 28	Window <i>Bogh</i> not appropriate in size and proportion

Buildings that came before the guidelines are proportionate owing to their traditional features. Even the traditional buildings that are built in recent times are proportionate and aligns with the traditional entitlement of Bhutanese architecture. However, modern buildings that are built using new materials depict varying degrees of interpretation of the traditional architectural features, conflicting with the Bhutanese Architecture Guidelines, 2014.

Discussion

The survey respondents indicate that the country has a balanced pool of workforce in private (48%) and governmental institutions (35%). Due to the upsurge in architect graduates, the number in the private sector is only going to increase in the coming years as a very small number of people are being absorbed in government jobs. In addition, Bhutan has relatively young working professionals (less than 10 years) which accounts for about 90%, indicating that the majority of them underwent studies in the early 2000s.

Since the dawn of modernization in the late 20th century (Thinley & Chimi, 2020), Bhutan's construction industry has been faced with the import of modern materials, labor and construction technologies (Department of Urban Development and Housing, 2002). To this, more than half (61%) of the architects agree on the dilution of traditional architectural practices with the import of modern materials, labor and construction technologies and thus providing a broader perspective to the already debated issue (Nima, 2017). Similarly, the majority of the survey participants (69%) are in favor of the ambiguity being caused to the traditional building entitlement owing to the adoption of new materials and methods. This could explain the majority of them (78%) facing ambiguity while using the guideline as well. This is being validated by the visual survey, in which the majority of the buildings of recent times, built using modern materials depict varying degrees of interpretation of the traditional features, conflicting with the BAG 2014. Surprisingly though, traditional buildings of recent times built using conventional traditional materials are still proportionate and aligns with the traditional entitlement of Bhutanese architecture.

The visual survey also revealed significant numbers of buildings that came after the institution of the guideline not in accordance with the traditional entitlement and proportion, portraying superficial treatment of the façade. This could be due to the ambiguity in the traditional practice as a result of varied materials, techniques and foreign laborers as reflected in the online questionnaire. Few explanations can also be derived from the open-ended responses wherein one participant has said, “Most of the time the traditional Bhutanese architecture are just on the drawing and not on the building.” Likewise, it could be due to nearly 10% of the additional cost (Dorji, 2015) incurred by the mandatory traditional features.

Despite discrepancies in the guideline, amazingly 88% of them approve of the harmonious relationship of BAG 2014 with traditional architectural features and many agree (75%) on the positive impact brought about by the institution of the guideline to the built environment of Bhutan. However, owing to the changing dynamics of the construction sector, a staggering 87% of the respondents support the need for the review of the existing BAG 2014.

The following section of the discussion provides interpretation to the recommendation provided for the possible review of the guideline by the respondents which are grouped under six categories as presented under the result section of this study. In category one, many voiced the need for a more comprehensive and unequivocal guideline that would include more detailed information regarding the Bhutanese architecture, more section to the existing guideline as demanded by the changing times and lastly on the interpretation of the contemporary Bhutanese architecture. Regarding the need for a more elaborate Bhutanese architecture, although there are few publications on Bhutanese architecture, there isn't an all-encompassing document that brings about not only the tangible architecture but also on the rich intangible architecture associated with the traditional features. By bringing, experienced *zompoens* from diverse regions onboard during the documentation process could serve the aforesaid purpose.

Categories three and four presents contrasting ideas. While category three opined about the relaxation to the restriction posed due to the inclusion of mandatory traditional features, a nearly equal number of participants points out that the BAG 2014 is just a “guideline” and not an act or “rule” which must be strictly followed. It was formulated as exposure to Bhutanese architecture and doesn't provide a full manual to practice architecture in Bhutan. In this line, although, the Ministry of Works and Human Settlement (2014) points out that the guideline is advisory, it has statutory rights vested by the regulations such as Bhutan Building Rules (2018) and Development Control Regulation (2016) of Thimphu. This should possibly explain the misunderstanding of the status of the guideline amongst the respondents.

The former group also pointed out the flexibility in the guideline would enhance the blissful blending of traditional architecture with modern ideas, at the same time not limiting the creativity and not comprising on the pristine architectural heritage of the country. Conventionally, the building regulations have a strong correlation with the positive benefits and they should be reasonably rigid and adequately flexible (Nagpure et al., 2016).

Conclusion and recommendations

It can be concluded that the institution of the architecture guideline has aligned new construction activities with the traditional architecture requirements in its pursuit to preserve rich tangible traditional architecture. However, owing to the availability of new materials, techniques and laborers, conventional traditional timber features are translated into modern ways, often failing to justify the traditional requirements leading to superficial facade treatment. Likewise, the aforementioned factors are also causing ambiguity in the traditional architectural practices and simultaneously in the existing Bhutanese Architecture Guideline 2014.

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Bhutan's construction industry is run by relatively young professionals. With the changing times, many recommended the comprehensive review of the guideline. Since the guideline has been vested statutory rights by the Bhutan Building Regulation, it is often required to follow strictly which some feel is a restriction to their design creativity. However, there is a section of people who support the inclusion of mandatory traditional features which would go a long way in preserving the country's prestigious architecture. Nevertheless, it is felt that the marriage of traditional features with modern techniques, giving room for flexibility, at the same time restriction would be a way forward.

Like any other study, this study is also subjected to prospects of biases in responses as the individual emotional feelings might have overshadowed. Further, the study only considers the opinion of architects and thus inclusion of the perspective of other players in the construction industry such as engineers, contractors, planners and *zompoens* may also provide improved insights to better understand the objective of the study.

This study has attempted to shed light on the more complex situation and thus further detailed investigation and need analysis are recommended.

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