



# Journal of Art, Architecture and Built Environment (JAABE)

Volume No.2 Issue No. 1 Spring 2019

ISSN: 2617-2690 (Print) 2617-2704 (Online)

Journal DOI: <https://doi.org/10.32350/jaabe>

Issue DOI: <https://doi.org/10.32350/jaabe.21>

Homepage: <https://sap.umt.edu.pk/jaabe/Home.aspx>

Journal QR Code:



Article: **Setback Violation and Residents' Perception about Living Conditions in Vertical Buildings of Qasimabad, Hyderabad**

Author(s): **Sajan Shaikh, Mir Aftab Hussain Talpur, Farrukh Baig & Manzoor Ahmed Ogahi**

Online Published: Spring 2019

Article DOI: <https://doi.org/10.32350/jaabe.21.01>

Article QR Code:



Sajan Shaikh

To cite this article:

Shaikh, S., Talpur, M. A. H., Baig, F., & Ogahi, M. A. (2019). Setback violation and residents' perception about living conditions in vertical buildings of Qasimabad, Hyderabad. *Journal of Art, Architecture and Built Environment*, 2(1), 01–15.

[Crossref](#)

Copyright Information

This article is open access and is distributed under the terms of Creative Commons Attribution – Share Alike 4.0 International License



A publication of the  
School of Architecture and Planning,  
University of Management and Technology, Lahore, Pakistan.

Indexing Agency



# Setback Violation and Residents' Perception about Living Conditions in Vertical Buildings of Qasimabad, Hyderabad

Sajan Shaikh<sup>1\*</sup>  
Mir Aftab Hussain Talpur<sup>2</sup>  
Farrukh Baig<sup>3</sup>  
Manzoor Ahmed Ogahi<sup>4</sup>

## Abstract

Setback is a building regulation enforced to regulate spacing between two buildings in order to have adequate solar exposure and ventilation. It is mandatory on the part of every individual who wants to construct a structure to obtain permission from the local authority before its construction. Despite rules and regulations framed for good reasons, instances of violation of development control rules (especially setback rules) are observed in the residential buildings of Qasimabad, Hyderabad. This results in the obstruction of sunlight, poor ventilation and high consumption of energy. It also results in deteriorating living conditions and narrowing of the adjacent local roads and alleys, creating congestion. So, this paper has tried to highlight the violations of setback rules in residential buildings and their impact on living conditions. For the perception of living conditions, a questionnaire survey with the Likert 5-point scale was used. Field survey technique was also carried out to measure the existing setbacks of residential buildings in Qasimabad. Standardized setbacks were determined by applying the formulas and by comparing them with existing setbacks. The comparison shows that existing setbacks are against building bye-laws. Despite discussing all building laws with various development agencies, this research is limited to discussing the setback rules mentioned in National Reference Manual (NRM). The study reveals that those residents who do not have a side setback area are more concerned with their privacy, smoke, sound and darkness; whereas, ineffective lighting, air circulation and the rise of temperature affect the living conditions and result in high energy consumption by residents. The study is imperative because it brings the

<sup>1,3</sup>School of Transportation and Logistics, Dalian University and Technology, Liaoning, China

<sup>2,4</sup>Department of City and Regional Planning, Mehran University of Engineering and Technology Jamshoro, Pakistan

\*Corresponding author: [shaikhsajan402@gmail.com](mailto:shaikhsajan402@gmail.com), [sajanshaikh@mail.dlut.edu.cn](mailto:sajanshaikh@mail.dlut.edu.cn)

focus of the development agencies towards the neglect of setback rules in high rise buildings and provides the evidence of their impact on living conditions by measuring residents' perceptions.

**Keywords:** building setback, bye-laws violation, Likert scale

## Introduction

Building bye-laws are legal tools used to regulate coverage, height, building bulk, architectural design and aspects of the construction of buildings to achieve orderly development of an area. They are a set of rules enforced in human settlements and are aimed to protect public health, safety, general welfare and environment (India environment portal, [2016](#); Kumar, [2015](#)). Among these rules, setback is the one which posits that space fully open to sky must be provided at the ground level from the edge of the building, wherein built-up area shall not be permitted except when specifically permitted (Shojai, Mori & Nomura, [2016](#)). The presence of setbacks in residential buildings improves their visual appearance. Additionally, in large urban areas, the existence of setbacks in residential buildings is quite useful in improving the living conditions (Basu & Gopalakrishnan, [2008](#)).

The provision of setbacks has significant social and environmental benefits for residents (Khan, [2008](#)). These include light, openness, fire protection, privacy enhancement, uniformity, encroachment elimination, public health protection, and safety. The existence of setbacks is quite common in modern buildings due to the functional and aesthetic requirements of these buildings (Athanasiadou, [2008](#)). In developing countries, private constructions are known for illicitly maximizing the floor space and violating the building setback rules, which leads to the obstruction of sunlight and poor ventilation. Sometimes, the neglect of this building code narrows the adjacent local roads and creates congestion. On the other hand, building setbacks occupy the necessary urban spaces which may provide us with comfort and breathing space (Khan, [2008](#)). Pakistan, being a developing country, faces the consequences of desecration in building bye-laws. Recent literature provides evidence about the metropolitan city of Lahore and shows key violations in buildings in the form of no prior approval of building plans, coverage of mandatory spaces, deficient parking provision, and coverage of setback area (Aziz, [2018](#)). Similarly, in case of Qasimabad, due to the lack of law enforcement and

monitoring people violated the building plans during the construction of their buildings and structures, as shown in figure 1. Building and streets are closely tied in Qasimabad, resulting in more energy consumption as well as deteriorated environmental and living conditions (Hyderabad: AAG Finds 2007). Hence, the aim of this research is to investigate setback violation in residential buildings, its impact on residents and their perception toward deprived living conditions. Consequently, it also helps to depict the living conditions of the residents of vertical buildings. This study is also a subsidy for developmental authorities and it will help them to cover the gaps in planning and implementation of building regulations and bye-laws.

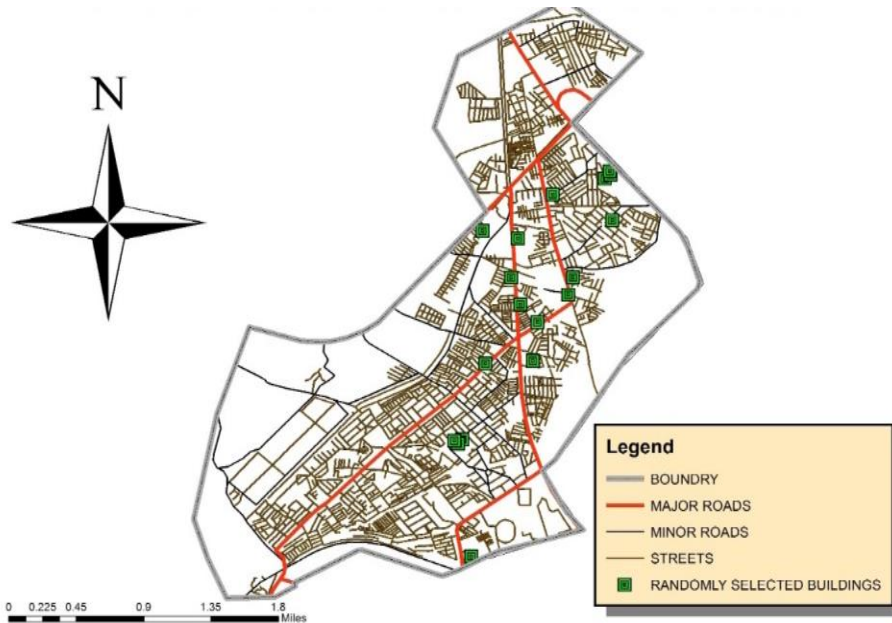


Figure 1. Existing insufficient setback area and openness

## 2. Research Material and Methods

### 2.1. Study Area

This study selected the neighborhood of Qasimabad in Hyderabad city as the study area. It is one of the main *talukas* of the Hyderabad city and it is situated in the western part of the city. According to the population census of Pakistan, Qasimabad has 304,899 persons and 60,086 households (Pakistan Bureau of Statistics, [2017](#)). It is administratively divided into four union councils and is considered a major urban area of Hyderabad (Ahmed [2010](#); Mangi, Chandio, Talpur, & Shaikh, [2018](#)).



*Figure 2.* Location of sampled buildings in Qasimabad

The lack of law enforcement and monitoring allowed people to violate the building plans during the construction of their buildings and structures as exemplified in figure 3. Therefore, this paper illustrates the violation of setback rules in residential buildings and the consequences of their violation on living conditions. There are around 320 vertical buildings/flats in Qasimabad which cover 3.9% of the total land of Qasimabad (Mangi et al., 2018). To demonstrate setback violation, random sampling method was used to select the buildings for the purpose of this study (Vanur & Villupuram, 2012). Randomly, 17 buildings were selected out of 320 as shown in figure 2. A field survey was done to measure the existing, front, rear, right and left side setbacks of the selected buildings. The number of stories and the height of each building according to the approved plan of that building was notified, as shown in table 1. To validate the measure of the violation of setbacks, the ratio of existing setbacks measured through field survey was compared with standardized setbacks and the percentage of violated setback area was calculated. Standardized setbacks were calculated by applying the formula given in the Pakistan setback regulations, as shown in table 1.



Figure 3. 3D view of blocks in a building with shortest horizontal distance and front façade

Demonstration in figure 3 shows that the horizontal distance (side setback) between Block C and Block A is very small and Block C is closely constructed in front of Blocks A and B in an opposite direction, such that the balconies of apartments face each other. This small distance from the side and front of the building leads to worsening living conditions. Figure 4 exemplifies the standardized horizontal distance and the front setback area between building blocks, that distance is enough for improved social and environmental living conditions of residents.

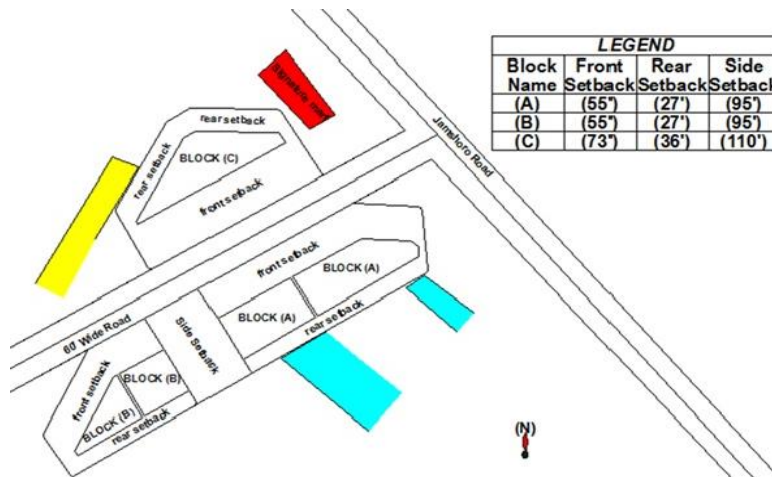


Figure 4. View of blocks in a building with standardized horizontal distance and front façade



## 2.2. Setback Regulation in Pakistan

As per National Reference Manual, to ensure adequate light and air, privacy and fire break, the general rule for minimum horizontal distance between two multi-unit dwellings is as follows,

$$\text{Side Setback} = \frac{\text{Hight of Building A} + \text{Hight of Building B}}{2}$$

Angel of response may be used to determine the setback of multi-unit dwellings from the edge of the road as shown in figure 5 (National reference Manual 1986)

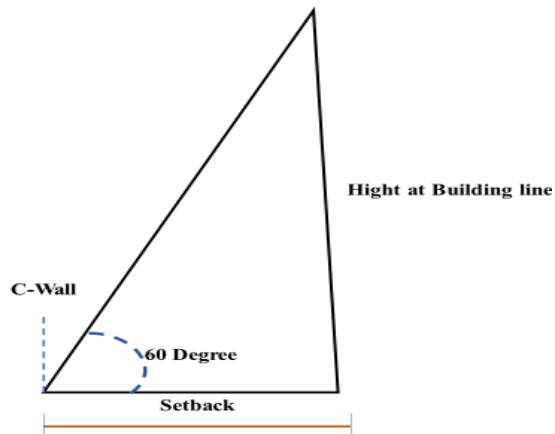


Figure 5. The setback of residential building as per NRM

$$\text{Setback from plot line or front setback} = \frac{\text{Hight of Building}}{\tan(60^\circ)}$$

## 2.3. Questionnaire Survey

Since the study investigates the impact of building setback violations; therefore, a questionnaire survey was conducted. Considering the importance of demographic characteristics, the questionnaire was divided into two parts; (1) demographic details of residents, and (2) residents' perceptions regarding the consequences due to setback violations. A sample of 80 residents was determined considering the economic constraints and time. The sample was considered sufficient due to the fact that individual vertical buildings share the same characteristics with all of their residents

(Krejcie & Morgan, 1970). Questionnaires were filled through a door to door survey in all selected buildings.

#### 2.4. Likert Scale

Psychometric techniques are being developed, instituted and refined to meet the quantification of traits like ability, perceptions, qualities and outlooks; which are the requirements of social sciences and educational researches (Joshi, Kale, Chandel, & Pal, 2015). Among these techniques, the Likert scale was developed and named after psychologist Rensis Likert. This scale is commonly used to measure attitude by providing a range of responses to a given question or statement (Subedi, 2016). So, keeping in view the objectives of this study, to measure the attitude/perception of people living in the vertical buildings the Likert scale was used (Shojai et al., 2016). Likert scale with index numbers is an effective tool to judge peoples' opinions (Talpur, Chandio, Baig, & Abbasi, 2016). For this paper, scores of (+2), (+1), (0), (-1), and (-2) were a substitute to highly satisfied, satisfied, neutral, undecided and highly unsatisfied. Firstly, index score was determined by multiplying the frequency of each response with its score. Secondly, the resulted value was added to obtain the weighted total. It was then divided by the total number of responses of the respective attribute, that is, 80, as explained in equation 1 below.

$$\text{Satisfaction Index} = \frac{\text{Weighted total score}}{\text{Total number of respondents}} \quad \text{eq. 1}$$

### 3. Results and Discussion

The values of standardized setback and violated setback are presented in table 1. Violated values deviate from the standardized values. The table also mentions the percentage of violated areas due to deviated values. Table 1 illustrates that the existing setbacks are highly violated. Front setbacks in Al Rahim Villas (Block B), Naseem Shopping Mall Block 1, Shahbaz Arcade Block D and Naqash Villas Block A are highly violated. These buildings are not provided with front setbacks, although as per Pakistan regulations they should have 26, 49, 32, and 25 feet front setbacks, respectively. Rare side setbacks of VIP Luxury Apartment, Bismillah Block 1, Hijra Inclave Plaza Block A, Jazib Heights Block II, Queens Residential Block C, Meet Plaza, Shahbaz Arcade D, Agriculture Complex Block C, A



and D, Al Rehman Tower Block Al-A2 are highly violated. These buildings are not constructed with rear setbacks. Comparing with standard setbacks of Pakistan regulation, the rear setbacks of these buildings should be 27, 50, 44, 38, 50, 44, 32, 38, and 50 feet, respectively. The right side setbacks of VIP Luxury, Hijra Inclave Plaza Block A, Jazib Heights Block II, Meet Plaza, and Al Rehman Tower Block Al-A are highly violated. The comparison of these setbacks with standardized setbacks shows that these buildings should have 51, 76, 70, 71 and 86 feet right side setbacks, respectively. The left side setbacks of Hijra Inclave Plaza Block A, Jazib Heights Block II, Qasimabad Heights, Royal City Block B and Meet Palace are highly violated and the comparison with standard left side setbacks shows that these buildings must have 76, 70, 60, 86 and 71 feet of left side setbacks, respectively. Moreover, Jazib Heights Block II, Hijra Enclave Plaza Block A, Agricultural Complex Block C, Naseem Shopping Mall Block I, Shahbaz Archade D, Naqas Villa Block A and Shaias Residency Block B and C have illegally occupied 90 to 93 percent of the setback area. Similarly, Royal City Block B and Shaias Residency Block A have occupied 93 to 95 percent area. Furthermore, the influences of these violations on residents create a lot of problems in their social life.

Considering the demographic characteristics of residents shown in figure 6, it is known that 51.7 percent of the residents are living on rent, while the remaining have their own flats. 13.9 percent are living on the first floor, 19.9 percent on the second floor and 28.8 percent are living on the third floor. The remaining are living on floors above the third floor. Buildings in Qasimabad are constructed close to each other. Hence, solar exposure is rarely gained by the residents. Only 13.9 percent people get the light façade in their flats for 6-8 hours; the deficiency of natural light increases the consumption of electricity. Privacy is also disturbed due to the closeness of buildings. More than 50 percent residents responded that in front of their window there is their neighbors' flat. Due to the illegally occupied setback area, roads and streets are congested. 33.8 percent people responded that the width of the side area of the adjacent building is not enough even for a single person to pass. Only 22.5 percent residents responded that side area's width is enough for a vehicle to go through.

Table 1  
*Violation of Residential Building Setbacks*

Building Name	Standardized setback (feet)				Violated setbacks (feet)				Violated area (%)
	Front Side	Rear Side	Right Side	Left Side	Front Side	Rear Side	Right Side	Left Side	
01 VIP Luxury Apartment	27	27	51	51	17.5	00	0	09	83
02 Bismillah Tower Block I	50	50	85	85	24	00	04	04	88.1
03 Hijra Enclave Plaza Block A	44	44	76	76	20	00	00	00	91.6
04 Jazib Heights Block II	38	38	70	70	20	00	00	00	90.7
05 Qasimabad Heights	32	32	60	60	29	00	04	00	82
06 Queen's Residencia Block C	50	50	87	87	38	00	08	08	80.2
07 Al Rahim Villas Block B	26	26	45	45	00	06	08	08	84.5
08 Royal city Block B	50	50	86	86	13	06	00	00	93
09 Naseem Shopping Mall Block 1	49	49	85	85	00	11	6.5	3.5	92.1
10 Meet Palace	44	44	71	71	34	00	00	00	85.2
11 Shahbaz Archade D	32	32	56	56	00	00	09	3.5	92.8
12 Agricultural Complex Block C	38	38	65	65	10	00	04	04	91.2
13 Naqash Villas Block A	26	26	45	45	00	4.4	03	03	92.6
14 Al Rehman Tower Block A1-A2	50	50	86	86	23.9	00	00	6.8	88.7
15 Shaias Residency Block A	55	55	95	95	10	04	05	05	95.3
16 Shaias Residency Block B	55	55	95	95	15	04	05	05	92
17 Shaias Residency Block C	73	73	110	110	15	05	04	04	92.3

Table 2  
*Perception of Residents Regarding the Living Condition*

Features depict living conditions due to setback violation	Likert scale items					Weighted total	Satisfaction index
	Highly satisfied	Satisfied	Undecidable	Unsatisfied	Highly unsatisfied		
	Likert scale Score						
	+02	+1	0	-1	-2		
<b>The product of respondent frequency and Likert scale score</b>							
Natural Light in Residential Buildings	14	19	0	-16	-28	-11	-0.13
Openness in Residential Buildings	10	16	0	-23	-24	-21	-0.26
Privacy in Residential Buildings	28	13	0	-20	-42	-21	-0.26
Noise Pollution of surrounding	10	8	0	-26	-54	-62	-0.77
Air circulation	16	17	0	-19	-22	-8	-0.1
Ventilation	8	19	0	-23	-14	-10	-0.12
Temperature	38	42	0	-8	-12	60	0.75
Energy consumption	14	23	0	-14	-38	-15	0.18

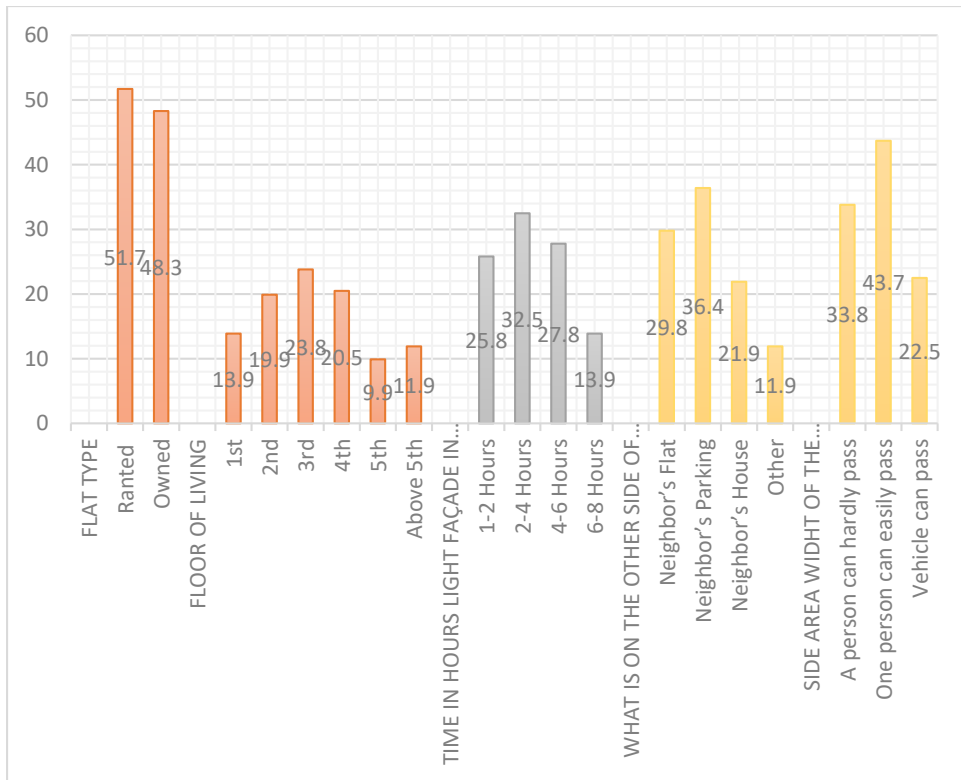


Figure 6. Residents' demographic characteristics in selected vertical buildings

The determination of the satisfaction index for each attribute (equation 1) used is shown in table 2. The Likert scale values from +2 to -2 range from 'highly satisfied' to 'highly unsatisfied', respectively. Satisfaction index values indicate that residents are not satisfied with natural light, openness, privacy, air circulation, and ventilation. Noise pollution exceedingly affects the residents. They are highly unsatisfied with the surrounding noise pollution. On the other hand, residents somehow are satisfied with the temperature and energy consumption.

#### 4. Limitations

Local government usually determines the size of setbacks based on the zoning district or the classification of land. In Pakistan, there are several

developmental authorities which have different building codes. In spite of the debate on various building codes, the current study is based on the setback rules described in the 'National Reference Manual on Planning and Infrastructure standards (NRM)', which is recognized all over the country. Although, the NRM is not up-to-date and needs revision; still, it's a brief book on building codes. The present situation requires modification in building bye-laws. However, the current study is limited to finding an association between setback violation or lack of required/essential open spaces on four sides of buildings and the lower level of inhabitant's satisfaction with their living place. Hence, this paper stimulates further thinking and research about the characteristics of small open spaces surrounding buildings in a residential environment and how these seemingly insignificant spaces contribute to the lives and neighborhood perceptions of their residents.

## 5. Conclusion

Building bye-laws are a set of rules enforced in human settlements and aimed to protect the public. Setback rules have significant social and environmental benefits for residents and the presence of setback areas satisfy the functional and aesthetic requirements of the buildings. Private constructions are responsible for illegally maximizing the floor space and violating the building setback rules which leads to the worsening of living conditions. The measurement of the violation of residential building regulations regarding setbacks was discussed in detail. The methodology was based on two aspects. Firstly, a field survey was done to measure the prevailing setbacks in the residential buildings of the study area as compared to standard setbacks. Secondly, a questionnaire survey was done to determine the residents' perception toward the depraved impact of the violated setback areas on the living conditions. The results confirm that the illegally occupied space of setbacks is very large, it ranges from 90 to 95 percent of the setback area. The consequences of such a deviation makes the residents highly unsatisfied with the social and environmental living conditions. This research is beneficial because it suggests the developmental authorities to approve the building construction plan by taking considerations and monitor the construction work so that people should avoid the violation of building regulations. Moreover, future studies

may compare the factors influencing residents' satisfaction regarding two different types of vertical buildings, that is, buildings with setbacks and buildings without setbacks.

### Acknowledgment

The corresponding author is thankful to the China Scholarship Council (CSC) for providing the financial support for Master's studies in China. The author is also grateful to batch 13 of City and Regional Planning Department, Mehran University of Technology Jamshoro Sindh, for their assistance in the field survey.

### References

- Ahmed, A. (2010). *Report on tranche condition D (I): Pakistan- Punjab devolved social services program release of the third tranche*, 1–44. Retrieved from [https://www.adb.org > default > files > projectdocument > 32264-pak-prtr](https://www.adb.org/default/files/projectdocument/32264-pak-prtr)
- Athanassiadou, C. J. (2008). Seismic performance of R/C plane frames irregular in elevation. *Engineering Structures*, 30(5), 1250–61.
- Aziz, A. (2018). Examining the root causes of deficient building control and its nonconforming impacts in Lahore. *Journal of Urban Planning and Development*, 144(2), 05018003.
- Basu, D., & Gopalakrishnan, N. (2008). Analysis for preliminary design of a class of torsionally coupled buildings with horizontal setbacks. *Engineering Structures*, 30(5), 1272–91.
- India Environment Portal. (2016). *Model Building Bye-Laws, 2016*. Retrieved from [http://www.indiaenvironmentportal.org.in/files/file/MODEL BUILDING BYE LAWS-2016.pdf](http://www.indiaenvironmentportal.org.in/files/file/MODEL_BUILDING_BYE_LAWS-2016.pdf)
- Joshi, A., Kale, S., Chandel, S., & Pal, D. K. (2015). Likert scale: Explored and explained. *British Journal of Applied Science & Technology*, 7(4), 396–403. <http://www.sciencedomain.org/abstract.php?iid=773&id=5&aid=8206>
- Khan, A. M. (2008). *FAR as a development control tool: A new growth management technique for Dhaka city*. Retrieved from <https://www.eldis.org/document/A60849>



- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607–10.
- Kumar, A. (2015). Approach to formulate setback regulations for Indian hill towns. *International Journal of Sustainable Built Environment*, 4(1), 91–99. <http://dx.doi.org/10.1016/j.ijbsbe.2015.03.001>
- Mangi, M. Y., Chandio, I. A., Talpur, H. A. M., & Shaikh, F. A. (2018). Urban land use planning trend and sustainable challenges in socio-economic development. *Mehran University Research Journal of Engineering & Technology*, 37(2), 397–404. DOI: 10.22581/muet1982.1802.15
- Pakistan Bureau of Statistics. (2017). *District and tehsil level population summary with region breakup region*. Islamabad: Author.
- Shojai, A., Mori, S. & Nomura, R. (2016). Developing terminology for side facades and side setback areas in Japanese neighborhoods: A study on utility and perception. *City, Territory and Architecture*, 3(1), 6. Retrieved from <http://cityterritoryarchitecture.springeropen.com/articles/10.1186/s40410-016-0034-0>
- Subedi, B. P. (2016). Using likert type data in social science research: Confusion, issues and challenges. *International Journal of Contemporary Applied Sciences*, 3(2), 2308–1365. <http://www.ijcas.net>
- Talpur, M. A. H., Chandio, I. A., Baig, F., & Abbasi, F. (2016). Physical and socioeconomic dwelling conditions: Identifying satisfaction level of taluka Kotri residents, Sindh, Pakistan. *Sindh University Research Journal (Science Series)*, 48(3), 617–20.
- Vanur, T. K., & Villupuram, D. (2012). Violation of building bye-laws and development control rules : A case study. *IOSR Journal*, 2(4), 48–59.