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# Assessment of Indoor Thermal Condition on Traditional Vernacular Masjid: A Case Study on Masjid Kampung Laut, Malaysia

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## Abstract

Traditional vernacular architectures in Malaysia include public buildings such as a masjid were designed with the tropical climate in mind and have proven as an excellent example of providing indoor thermal comfort to the occupants. It is a naturally ventilated building being greatly influenced by the building designs. In traditional vernacular architecture, the roof is the main building enclosure that contributes to the total heat gain. Hence, the research aims to assess the indoor thermal condition of Masjid Kampung Laut, Kelantan, as the first traditional vernacular masjid in Malaysia. Data were collected using the method of field measurement to evaluate the indoor comfort level of the masjid, in terms of indoor air temperature, air velocity, and relative humidity. The results demonstrate that the average indoor air temperature is acceptable and Masjid Kampung Laut responded favorably to the local climate. However, some improvements are necessary to further enhance indoor thermal comfort. Therefore, the findings can guide further thermal comfort prediction studies for other naturally ventilated buildings. Several other potential passive design strategies for roof design are proposed in this study to achieve acceptable indoor thermal comfort conditions for the masjid in Malaysia. © 2023, The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.



## Author keywords

Field measurement; Indoor thermal comfort; Traditional vernacular masjid

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- 
- 1 Hassan, A.S., Nawawi, M.S.A.  
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(2014) *Asian Social Science*, 10 (8), pp. 230-240. Cited 12 times.  
<http://www.ccsenet.org/journal/index.php/ass/article/download/35493/20142>  
doi: 10.5539/ass.v10n8p230

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- 
- 2 Jamaludin, N., Mohammed, N.I., Khamidi, M.F., Wahab, S.N.A.  
Thermal comfort of residential building in Malaysia at different micro-climates  
(2015) *Procedia Soc Behav Sci*, 170, pp. 613-623. Cited 66 times.

- 
- 3 Hussin, A., Salleh, E.  
(2013) *Indoor Thermal Condition in the Air-Conditioned Mosque Building: A Case Study during Friday Prayer in Malaysia*
-

- 
- 4 Azmi, N.A., Ibrahim, S.H.  
A comprehensive review on thermal performance and envelope thermal design of mosque buildings  
  
(2020) *Building and Environment*, 185, art. no. 107305. Cited 17 times.  
<http://www.elsevier.com/inca/publications/store/2/9/6/index.htm>  
doi: 10.1016/j.buildenv.2020.107305  
  
View at Publisher
- 
- 5 Noman, F.G., Kamsah, N., Kamar, H.M.  
Improvement of thermal comfort inside a mosque building  
  
(2016) *Jurnal Teknologi*, 78 (8-4), pp. 9-18. Cited 20 times.  
<http://www.jurnalteknologi.utm.my/index.php/jurnalteknologi/article/download/9579/5715>  
doi: 10.11113/jt.v78.9579  
  
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- 
- 6 Budaiwi, I.M., Abdou, A.A., Al-Homoud, M.S.  
Envelope retrofit and air-conditioning operational strategies for reduced energy consumption in mosques in hot climates  
  
(2013) *Building Simulation*, 6 (1), pp. 33-50. Cited 29 times.  
<http://www.springer.com/engineering/journal/12273?detailsPage=aboutThis>  
doi: 10.1007/s12273-012-0092-5  
  
View at Publisher
- 
- 7 Afgani, Y.E., Denny, M., Puad, A.M.S., Mahmud, M.J., Basri, I.  
An assessment of green mosque index in peninsular Malaysia  
(2015) *Tourism Environ Soc Manag Sci*, 15, pp. 114-122. Cited 8 times.  
*Am J Agric Environ Sci*
- 
- 8 Liping, W., Hien, W.N.  
The impacts of ventilation strategies and facade on indoor thermal environment for naturally ventilated residential buildings in Singapore  
  
(2007) *Building and Environment*, 42 (12), pp. 4006-4015. Cited 130 times.  
doi: 10.1016/j.buildenv.2006.06.027  
  
View at Publisher
- 
- 9 Wong, N.H., Wen, J., Tong, S., Tan, E., Kardinal Jusuf, S.  
Impact of façade design on building thermal performance in tropical climate  
(2018) *MUIGBC2018 E-Proceeding*, pp. 53-57.
- 
- 10 Roslan, Q., Halipah, S., Affandi, R., Nasrun, M., Nawi, M., Baharun, A.  
A literature review on the improvement strategies of passive design for the roofing system of the modern house in a hot and humid climate region  
(2015) *Front Arch Res*, pp. 1-8.
-

- 
- 11 Rahim, M., Marasabessy, F.  
Evaluation of Natural Ventilation Characteristics on the Sultanate of Ternate Mosque  
  
(2019) *IOP Conference Series: Materials Science and Engineering*, 506 (1), art. no. 012035. Cited 7 times.  
<https://iopscience.iop.org/journal/1757-899X>  
doi: 10.1088/1757-899X/506/1/012035  
  
View at Publisher
- 
- 12 Fatimah, W., Yusoff, M.  
Initial assessment of indoor environmental condition and thermal comfort of Malaysia heritage mosque  
(2020) *J Eng*, 32 (2), pp. 271-280. Cited 3 times.
- 
- 13 Nordin, N.I., Misni, A.  
Evaluating the interior thermal performance of mosques in the tropical environment  
  
(2018) *IOP Conference Series: Earth and Environmental Science*, 117 (1), art. no. 012014. Cited 4 times.  
<http://www.iop.org/EJ/volume/1755-1315>  
doi: 10.1088/1755-1315/117/1/012014  
  
View at Publisher
- 
- 14 Hassan, A.S.  
Kampung laut's old mosque in Malaysia: Its influence from Chinese building  
(2011) *Construction*, 2 (1), pp. 27-52. Cited 3 times.
- 
- 15 Hassan, A.S.  
Islam came to South East Asia from China: Evidence from traditional Chinese roof design in kampung laut's old mosque  
(2010) *Malaysia*, 6 (5), pp. 1-15. Cited 5 times.
- 
- 16 Nasir AH, The HHW, Yuan L (2011) The traditional Malay house. In: United Nations Dev Program Spec Unit Tech Coop among Dev Countries, Shar Innov Exp, vol 2
- 
- 17 Asif, N., Utaberta, N., Sarram, A.  
(2019) *Architectural Styles of Malaysian Mosque: Suitability in Compact Urban Settings*, 1, pp. 1-6.
- 
- 18 Shah, M.A., Arbi, E.  
Inangda N (2014) Transformation of mosque architecture in Malaysia: Critical analysis of architectural history approaches  
*Proceeding of the International Conference on Arabic Studies and Islamic Civilization Icasic (E-Isbn 978-967-11768-4-9)*, pp. 54-64. Cited 6 times.  
Kuala Lumpur, Malaysia
-

- 
- 19 Che Din, N., Abd Jalil, N.A., Ahmad, Y., Othman, R., Otsuru, T.  
(2013) *Measurement of the Acoustical Performance of Traditional Vernacular Mosques in Malaysia*, pp. 1-7. Cited 2 times.  
Internoise
- 
- 20 Ahmad, A.G.  
The architectural styles of mosques in malaysia: From vernacular to modern structures  
(1999) *Proceedings of The Symposium on Mosque Architecture: The Historic and Urban Developments of Mosque Architecture, 2*, pp. 147-163. Cited 20 times.  
Riyadh, Saudi Arabia
- 
- 21 Ahmad AA, Ali@Mat Zin A, Arbi E (2013) Typology of interior architecture for traditional mosques in peninsular Malaysia from 1700–1900 AD. *J Al-Tamaddun* 8(2):89–100
- 
- 22 Surat, M., Utaberta, N., Tahir, M.  
Memantapkan pensejarahan masjid tua kampung laut melalui analisis perbandingan dengan masjid agung demak  
(2010) *J Islam Archit*, 1 (1), pp. 32-45. Cited 3 times.
- 
- 23 Bughio, M., Schuetze, T., Mahar, W.A.  
Comparative analysis of indoor environmental quality of architectural campus buildings' lecture halls and its' perception by building users, in Karachi, Pakistan (Open Access)  
  
(2020) *Sustainability (Switzerland)*, 12 (7), art. no. 2995. Cited 14 times.  
[https://res.mdpi.com/d\\_attachment/sustainability/sustainability-12-02995/article\\_deploy/sustainability-12-02995-v2.pdf](https://res.mdpi.com/d_attachment/sustainability/sustainability-12-02995/article_deploy/sustainability-12-02995-v2.pdf)  
doi: 10.3390/su12072995  
  
View at Publisher
- 
- 24 Al-Azri, N.A., Zurigat, Y.H., Al-Rawahi, N.Z.  
Development of bioclimatic chart for passive building design (Open Access)  
  
(2013) *International Journal of Sustainable Energy*, 32 (6), pp. 713-723. Cited 12 times.  
doi: 10.1080/14786451.2013.813026  
  
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- 
- 25 Yusoff, W.F.M., Ja'Far, N.H.  
Preliminary evaluation of indoor thermal comfort in Malaysia heritage mosque  
(2019) *MATEC Web Conf*, 277. Cited 2 times.
- 
- 26 Profile SEE (2012) Thermal comfort and indoor air quality. *Green Energy Technol* 84(July):1– 13
-

- 27 Wahab, I.A., Ismail, L.H., Kadir, A.A.  
(2016) *Opening Design and Position Effect on Building Natural Stack Effect and Cross Ventilation*

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