

5. Recommendations and conclusion

The use of earth berming techniques is theoretically evaluated for its performance by doing the thermal balance using thermal transmittance method. The three case studies taken are use of porous soil, black cotton soil and lateritic soil, embedded between the inside wall and the lawn at outer surface. The new method adopted for performance is useful for designing earth berming system by thermal balance. The triangular shape is further optimized by varying width and height the earth berming triangle. Further it is noted that earth berming with lateritic soil is most suitable to achieving the comfort inside building.

6. References

- 1) J.K. Nayak And J.A. Prajapati ; “Handbook On Energy Conscious Buildings” Prepared Under The Interactive R & D Project No. 3/4(03)/99-Sec Between Indian Institute Of Technology, Bombay And Solar Energy Centre, Ministry Of Non-Conventional Energy Sources; May 2006.
- 2) M. Staniec, H. Nowak; “Analysis Of The Earth-Sheltered Buildings”; Heating And Cooling Energy Demand Depending On Type Of Soil Vol. Xi 2011, P.P.1-15.
- 3) R.K.Rajput “Heat and Mass Transfer” S.Chand And Company Pvt Ltd. (An Iso 9001:2008 Company)
- 4) E.A. Rodriguez S. Alvarez, Ph.D. “Heat Transfer Analysis of Ground-Coupled Structures”
- 5) Pawłowski Aleksander, Heim Dariusz Hensen Jan “Ground Source Heat Pumps Designed For Low-Energy, Earth-Sheltered Atrium Building”
- 6) Staniec M.: “Analysis of the influence of earth sheltering on the building’s energy balance” (in Polish), PhD Thesis, Series PRE No. 01/09, Wrocław University of Technology, 2009.
- 7) Maja Staniec1, Henryk nowak1 “Analysis of The Energy Performance of Earth-Sheltered Houses with Southern Elevation Exposed” 2009 Eleventh International IBPSA Conference
- 8) G. P. Mitalas Basement “Heat Loss Studies at DBR/NRC” Division of Building Research 1982

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