

## Z. Tuğçe KAZANASMAZ (PhD.)

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### Research Interests

Daylight Performance of Buildings  
Architectural Lighting in Building Physics  
Energy Performance and its relation to building attributes

### Education

B.Arch.; Middle East Technical University, 2000

M.Sc. in Architecture/ Building Technology; Middle East Technical University, 2002.

*"Lighting in Hospital Architecture: Effectiveness of Lighting Systems for Inpatient Departments; A Case Study on İbn-i Sina Hospital, Ankara".*

Ph.D. in Architecture/ Building Technology; Middle East Technical University, 2005.

*"An Investigation on the Planimetric Design Efficiency of Inpatient Departments in Healthcare Facilities".*

Associate Prof. in Architecture; İzmir Institute of Technology, since 2012.

### Professional Practice and Research Activities

#### Supervisor in Graduate Theses (M.Sc.)

1. Binol, S., "A prediction model for daylighting illuminance for office buildings", İzmir Institute of Technology(IYTE), Arch., 2008.
2. Soykan, E., "Thermal comfort evaluation in intelligent buildings; Case study in Darüşşafaka Residence", IYTE, Arch., 2009.
3. Uygun, İ. "The impact of architectural design criteria on energy performance of residential buildings: A case study in İzmir", IYTE, Arch., 2012.
4. Turhan, C. "Prediction of energy consumption of residential buildings by artificial neural networks and fuzzy logic", İYTE, Energy Engineering, (co-supervisor), 2012.
5. Firat, P. "Modelling of advanced daylighting systems to improve illuminance and uniformity in architectural design studios", IYTE, Arch., 2013.

#### Supervisor in Graduate Theses (Ph.D.)

1. Uygun, İ. "Optimization of lighting design in offices", IYTE, Arch., since 2014.

2. Bayram, G. "Retrofitting of an educational building in terms of energy efficient lighting criteria by a simulation analysis", İYTE, Arch., 2015.
3. Cilasun, A. "Effectiveness of occupancy based lighting controls in the prediction of lighting energy saving in daylight oriented work spaces" İYTE, Arch., 2016.
4. Coşkun Öner, Ö. "Comparison of architectural design elements for vernacular and contemporary residential buildings in terms of their energy performance", İYTE, Arch., since 2013.
5. Grobe, L.O. "Evaluation of Daylight Redirecting Systems using Data-Driven Models" İYTE, Arch., since 2015.

## **Research Projects**

*Retrofitting of public buildings in terms of energy efficiency*, Research Project funded by İYTE, no: 2007İYTE23, Project Coordinator, 2007-2009.

*Determination the relationship between the energy performance of residential buildings and their architectural design parameters*, Research Project funded by Tübitak, no: 109M450, Project Coordinator, 2010-2012.

*Effective Use of Daylight in Buildings*, Research Visit funded by TUBITAK Fellowship Programme (2 months) in Lucerne University Applied Sciences and Arts (Hochschule Luzern) Competence Center Envelopes and Solar Energy, Switzerland, no: 1059B191500018, August-September 2015.

*An experimental study to validate the optimization model about lighting design in offices*, Research Project funded by İYTE, no: 2015İYTE47, Project Coordinator, 2015-2016.

*Effectiveness of users on lighting system and energy consumption in offices: user manual control*, Research Project funded by İYTE, no: 2014İYTE26, Project Coordinator, 2014-2015.

## **Administrative Appointments**

İYTE Commission of Academic Presentation in Architecture, since 2006.

İYTE Commission of Career Office, since 2012.

İYTE Commission of Lateral Transfer in Architecture, since 2006.

İYTE Coordinator of Lighting Unit in Building Physics Laboratory in Faculty of Architecture, since 2006.

İYTE Directorate of Research, since 2014.

## **Teaching Experience (as Lecturer last 2 years):**

Undergraduate Courses

AR 252 Building Technology and Science IV  
AR 381 Building Physics II  
AR 383 Lighting Analysis in Building Physics

#### Graduate Courses

AR 501 Research Methods  
AR 502 Thesis Research  
AR 581 Principles of Building Physics  
AR 589 Energy Efficient Lighting Design  
AR 583 Principles of Daylighting Design and Analysis

#### Coordinated Conferences and Exhibitions (Selected)

*Global Warming Technology and Design Seminars 2010.* (A total of 12 seminars during February-April 2010 in Faculty of Architecture, İYTE).

A conference by Trakya Cam A.Ş. about '*Construction Technologies of Glass in Turkey*', 2012.

A conference by Chamber of Companies for Brick and Roof Tiles in Turgutlu, Manisa, about '*Heat Insulation Applications and Brick*', 2011.

An exhibition of Clean Energy Foundation Projects awarded in *Climate-based House Design Student Competition*, 2011.

*Daylighting and Facade Design Workshop*, İYTE, November, 2014.

#### Presentations in Seminars/Workshops (Selected)

Research Methods "Quantitative Research", İYTE, Dept. of Architecture, 2009.

Energy Efficient Design and Lighting, Chamber of Architects, İzmir, 2011.

A workshop by Ministry of Environment and Urban Planning, "Energy Efficiency in Buildings" , October 2010.

*Daylighting and Facade Design Workshop*, İYTE, November, 2014.

#### Selected Publications

##### Journal Articles

1. **Kazanasmaz, T.**, Günaydin, M. and Binol, S. (2009). Artificial neural networks to predict daylight illuminance in office buildings. *Building and Environment*. Vol. 44. No.8, 1751-1757.

2. Erlalelitepe, İ., Aral, D., **Kazanasmaz, T.** (2011) Eğitim Yapılarının Doğal Aydınlatma Performansı Açısından İncelenmesi [Evaluation of Daylighting Performance of Educational Buildings], *Megaron*, Yıldız Teknik Üniversitesi Mimarlık Dergisi, Yapı Fiziği ve Sürdürülebilir Tasarım Kongresi Özel Sayısı, 6:1, 39-51. [in Turkish]

3. **Kazanasmaz, T.** (2013). Fuzzy logic model to classify effectiveness of daylighting in an office with a movable blind system, *Building and Environment*. Vol. 69, 22-34.

4. **Kazanasmaz, T.**, Erlalelitepe Uygun, İ., Gökçen Akkurt, G., Turhan, C., Ekmen, K.E. (2014). On the relation between architectural considerations and heating energy performance of Turkish residential buildings in Izmir, *Energy and Buildings*. Vol.72, 38-50.
5. Turhan, C., **Kazanasmaz, T.**, Erlalelitepe Uygun, İ., Ekmen, K.E. Gökçen Akkurt, G. (2014). Comparative study of a building energy performance software (KEP-IYTE-ESS) and ANN-based building heat load estimation, *Energy and Buildings*, Vol.85, 115-125.
6. **Kazanasmaz, T.**, Örs Fırat, P. (2014). Comparison of advanced daylighting systems to improve illuminance and uniformity through simulation modelling. *Light & Engineering*, Vol.22, no.3, 56-66.
7. Bayram, G., **Kazanasmaz, T.** (2016). Simulation-based retrofitting of an educational building in terms of optimum shading device and energy efficient artificial lighting criteria, *Light & Engineering*, Vol24., no2., 45-55.
8. **Kazanasmaz, T.**, Grobe L.O., Bauer, C., Krehel,M., Wittkopf S. (2016) Three approaches to optimize optical properties and size of a South-facing window for spatial Daylight Autonomy, *Building and Environment*. Vol 102, 243-256.
9. Grobe, L.O., Hancı Geçit,B., Sevinç, Z., Altınkaya,G., Aksakarya, G., Ergin, M. Yörük, Y., **Kazanasmaz, T.** (2017). Scale-model and simulation-based assessments for design alternatives of daylight redirecting systems for side-lighting in an educational room. *METU Journal of Faculty of Architecture* (accepted to be published).

#### Conference Papers

1. Erlalelitepe İ., Ekmen K.E., Turhan C., Akdemir M., Akkurt G.G., **Kazanasmaz T.** (2011) Energy performance of residential buildings and their architectural configuration, *Low Energy Architecture (LEA) in World Renewable Energy Congress 2011–Sweden*, Conference Proceedings, Ed. Bahram Moshfegh, Linköping University, 8-11 May 2011, 1749-1756, Linköping, İsveç.
2. **Kazanasmaz, T.**, Fırat, P., Tosun, M.(2011), Prizmatik Ve Lazer Kesim Panellerin Doğal Aydınlatma Performansı Açısından Değerlendirilmesi (Evaluation of prismatic and laser-cut panels in terms of daylighting performance), VI. Ulusal Aydınlatma Sempozyumu, TMMOB Elektrik Mühendisleri Odası İzmir Şubesi, 24-25 Kasım 2011,44-56,İzmir.
3. **Kazanasmaz, T.**, Diler, Y. (2011), Gelişmiş Cam Teknolojileri ile Enerji Etkinliğin Değerlendirilmesi (Evaluation of advanced glass technologies and their energy efficiency), VI. Ulusal Aydınlatma Sempozyumu, TMMOB Elektrik Mühendisleri Odası İzmir Şubesi, 24-25 Kasım 2011,84-93,İzmir.
4. Turhan C., **Kazanasmaz, T.** Gökçen. G. (2012), The prediction of heating energy consumption for apartment buildings by using artificial neural networks in İzmir/Turkey, 6<sup>th</sup> IESE International Ege Energy Symposium & Exhibition, Symposium Proceedings, 28-30 June 2012, 507-516, İzmir, Turkey.
5. **Kazanasmaz, T.**, Fırat, P. (2012) Comparison of simulation tools mostly used in daylighting performance studies, *International Congress of Architecture - I* , 1st International Symposium Proceedings, Selcuk University Department of Architecture, 15-17 November 2012, 269-282, Konya, Turkey.

- 6. Kazanasmaz, T.,** Firat, P. (2013) Modeling of advanced daylighting systems to evaluate illuminance and Uniformity, 39<sup>th</sup> International Association for Housing Science (IAHS) World Congress on Housing, Politecnico di Milano, 17-20 September 2013,325-332, Milan, Italy.
- 7. Atça, E., İlal, M.E., Başaran, T., Kazanasmaz, T.,** Durmuş Arsan, Z. (2013) Renovating a lecture hall with a glass roof: A case study for performance based design, Central European Symposium on Building Physics, 9-11 September 2013, Vienna, Austria.
- 8. Uygun, İ., Kazanasmaz, Z.T.,** Kale S. Optimization of energy efficient luminaire layout design in workspaces Proceedings of CISBAT, Lausanne, September 9-11,2015, Lausanne, Switzerland, 301-308.
- 9. Grobe, L.O., Noback, A, Wittkopf, S., Kazanasmaz, Z.T.** Comparison of Measured and Computed BSDF of a Daylight Redirecting Component. Proceedings of CISBAT, Lausanne, September 9-11,2015, Lausanne, Switzerland, 205-210.
- 10. Bayram, G., Kazanasmaz, T.** (2016). The Influence of External Louver Design on Daylighting Performance and Lighting Energy Efficiency, In Proceedings of SBE 2016-International Conference on Sustainable Built Environment, 13-15 October,2016, 328-337, İstanbul, Turkey.
- 11. Kunduracı Cilasun, A., Kazanasmaz, T.** (2016). Assessing Manual Lighting Control in Offices, In Proceedings of SBE 2016-International Conference on Sustainable Built Environment, 13-15 October,2016, 247-251, İstanbul, Turkey.