

## Asst. Prof. BEKİR ÖZER AY

### Personal Information

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### Education Information

Doctorate, Middle East Technical University, Graduate School of Natural and Applied Sciences, İnşaat Mühendisliği (Dr), Turkey 2006 - 2012

Postgraduate, Middle East Technical University, Graduate School of Natural and Applied Sciences, İnşaat Mühendisliği (YI) (Tezli), Turkey 2004 - 2006

Undergraduate, Middle East Technical University, Faculty of Engineering, İnşaat Mühendisliği, Turkey 2000 - 2003

### Dissertations

Doctorate, A proposed ground motion selection and scaling procedure for structural systems, Middle East Technical University, Graduate School of Natural and Applied Sciences, İnşaat Mühendisliği (Dr), 2012

Postgraduate, Fragility based assessment of low-rise and mid-rise reinforced concrete frame buildings in Turkey, Middle East Technical University, Graduate School of Natural and Applied Sciences, İnşaat Mühendisliği (YI) (Tezli), 2006

### Research Areas

Civil Engineering, Structure, Structural Engineering, Earthquake Engineering, Architecture, Building Information, Structural elements, Engineering and Technology

### Academic Titles / Tasks

Assistant Professor, Middle East Technical University, Faculty Of Architecture, Department Of Architecture, 2018 - Continues

Assistant Professor, Middle East Technical University, Faculty Of Architecture, Department Of Architecture, 2015 - 2018

Lecturer, Middle East Technical University, Faculty Of Architecture, Department Of Architecture, 2014 - 2015

Lecturer, Middle East Technical University, Faculty Of Architecture, Department Of Architecture, 2011 - 2013

Research Assistant, Middle East Technical University, Faculty Of Engineering, Department Of Civil Engineering, 2007 - 2011

### Academic and Administrative Experience

Deputy Head of Department, Middle East Technical University, Faculty Of Architecture, Department Of Architecture, 2019 - Continues

## Courses

EXPERIMENTS FOR BUILT ENVIRONMENT, Postgraduate, 2018 - 2019

## Advising Theses

- Ay B. Ö. , A COMPARATIVE STUDY ON ALTERNATIVE STRUCTURAL SYSTEM LAYOUTS OF TWISTED TALL BUILDINGS, Postgraduate, G.NİHAN(Student), 2019
- Ay B. Ö. , INVESTIGATION OF BIM POTENTIALS ON SEISMIC RESILIENCY OF DRYWALL SYSTEMS DURING EARTHQUAKE, Postgraduate, D.İLİPİNAR(Student), 2019
- Ay B. Ö. , A statistical study on the harmonized up-to-date turkish building stock, Postgraduate, G.NUR(Student), 2019
- Ay B. Ö. , A study on the preliminary design of tall buildings: Investigating structural components, Postgraduate, G.ÇAMLİBEL(Student), 2019
- AY B. Ö. , Evaluation of the effects of service core reduction on tall building structures, Postgraduate, B.FAKİOĞLU(Student), 2019
- Ay B. Ö. , Sezer Uzol N., Investigation of aerodynamic and structural features of twisting tall buildings, Postgraduate, S.BİLGEN(Student), 2019
- AY B. Ö. , Evaluation of temporary housing units with multi-criteria decision making methods, Postgraduate, N.AKDEDE(Student), 2018
- AY B. Ö. , Aerodynamic performance of tall buildings: A study on the relation between wind escape and outrigger floors, Postgraduate, Y.AKSU(Student), 2018
- AY B. Ö. , GÜNEL M. H. , Potentials and limitations of supertall building structural systems: Guiding for architects, Doctorate, H.EMRE(Student), 2018
- AY B. Ö. , YAKUT A., Investigation of seismic isolation efficiency for building structures, Postgraduate, S.ÖZDEMİR(Student), 2017

## Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **A study on main architectural and structural design considerations of contemporary supertall buildings**  
İlgin H. E. , Ay B. Ö. , Günel M. H.  
Architectural Science Review, vol.64, no.3, pp.212-224, 2021 (Journal Indexed in SCI Expanded)
- II. **An Investigation of the Ground Motion Scaling Procedures for the Nonlinear Seismic Analyses of Concrete Gravity Dams**  
Soysal B. F. , AY B. Ö. , ARICI Y.  
JOURNAL OF EARTHQUAKE ENGINEERING, vol.23, no.6, pp.930-953, 2019 (Journal Indexed in SCI)
- III. **Technical Note: Practical Challenges Facing the Selection of Conditional Spectrum-Compatible Accelerograms**  
Ay B. Ö. , Fox M. J. , Sullivan T. J.  
JOURNAL OF EARTHQUAKE ENGINEERING, vol.21, pp.169-180, 2017 (Journal Indexed in SCI)
- IV. **Evaluation of a recently proposed record selection and scaling procedure for low-rise to mid-rise reinforced concrete buildings and its use for probabilistic risk assessment studies**  
AY B. Ö. , AKKAR S.  
EARTHQUAKE ENGINEERING & STRUCTURAL DYNAMICS, vol.43, no.6, pp.889-908, 2014 (Journal Indexed in SCI)
- V. **Reference database for seismic ground-motion in Europe (RESORCE)**  
AKKAR S., SANDIKKAYA M. A. , SENYURT M., SISI A. A. , AY B. Ö. , TRAVERSA P., DOUGLAS J., COTTON F., LUZI L., HERNANDEZ B., et al.  
BULLETIN OF EARTHQUAKE ENGINEERING, vol.12, no.1, pp.311-339, 2014 (Journal Indexed in SCI)
- VI. **Compatible ground-motion prediction equations for damping scaling factors and vertical-to-horizontal spectral amplitude ratios for the broader Europe region**  
AKKAR S., SANDIKKAYA M. A. , AY B. Ö.

BULLETIN OF EARTHQUAKE ENGINEERING, vol.12, no.1, pp.517-547, 2014 (Journal Indexed in SCI)

VII. **A procedure on ground motion selection and scaling for nonlinear response of simple structural systems**

AY B. Ö. , AKKAR S.

EARTHQUAKE ENGINEERING & STRUCTURAL DYNAMICS, vol.41, no.12, pp.1693-1707, 2012 (Journal Indexed in SCI)

VIII. **Vulnerability of Turkish low-rise and mid-rise reinforced concrete frame structures**

AY B. Ö. , ERBERİK M. A.

JOURNAL OF EARTHQUAKE ENGINEERING, vol.12, pp.2-11, 2008 (Journal Indexed in SCI)

## **Refereed Congress / Symposium Publications in Proceedings**

I. **Architectural Design Criteria Framework for Temporary Residential Settlements: Earthquake Victims and Refugees**

Akdede N., Ay B. Ö.

European Network for Housing Research ENHR2019, Athens, Greece, 27 - 30 August 2019

II. **A COMPARATIVE STUDY ON METHODS OF ANALYSES FOR SEISMICALLY ISOLATED STRUCTURES**

Özdemir S., YAKUT A., AY B. Ö.

16th world conference on seismic isolation, energy dissipation an active vibration conrol of structures, Saint Peter, Guernsey And Alderney, 1 - 06 July 2019

III. **Evaluation of the Effects of Service Core Reduction on Tall Building Structures**

Fakioğlu B., Ay B. Ö.

4th World Multidisciplinary Civil Engineering-Architecture-Urban Planning Symposium, Praha, Czech Republic, 17 - 21 June 2019

IV. **Evaluation of The Effects of Service Core Reduction on Tall Building Structures**

Fakioğlu B., Ay B. Ö.

International Civil Engineering and Architecture Conference, Trabzon, Turkey, 17 - 20 April 2019

V. **A Comparative Study on Alternative Structural Systems of Twisting Tall Buildings**

Taşkın G. N. , Ay B. Ö.

International Civil Engineering and Architecture Conference 2019, Trabzon, Turkey, 17 - 20 April 2019

VI. **Aerodynamic Performance of Slender Tall Buildings with Wind Escape Floors: A Study on Optimum Structural System and Wind Escape Floor Arrangement**

Aksu Y., Ay B. Ö.

International Civil Engineering and Architecture Conference 2019, Trabzon, Turkey, 17 - 20 April 2019, vol.2, pp.205-213

VII. **Investigation of Aerodynamic and Structural Features of Twisted Tall Buildings**

Bilgen S., Ay B. Ö. , Sezer Uzol N., Orbay Akcengiz E.

13th Advances in Civil Engineering Congress, İzmir, Turkey, 12 - 14 September 2018, pp.1-8

VIII. **Evaluation of Structural Systems of TOKİ Houses in terms of Sustainability**

Dener E., Ay B. Ö.

International Symposium on Urbanization and Environmental Problems: Transition/Transformation/Authenticity, Eskişehir, Turkey, 27 - 29 June 2018, pp.1-8

IX. **The Effects of Implementing Different Ground-motionLogic-tree Frameworks on Seismic Risk Assessment**

Ay B. Ö. , Kale Ö.

16th European Conference on Earthquake Engineering, Thessaloniki, Greece, 18 - 21 June 2018, pp.1-7

X. **İstanbul'da 2001-2016 Yılları Arası Üretilmiş Konut Stokunun Deprem Riski Bakımından Değerlendirilmesi**

Talas Soylu G., Ay B. Ö.

İstanbul 1. Konut Kurultayı, İstanbul, Turkey, 10 - 11 May 2018, pp.1

- XI. **A Proposed Criteria Matrix for Decision Analysis of Post Disaster Temporary Accommodation Units**  
Akdede N., Ay B. Ö.  
2nd International Symposium on Natural Hazards and Disaster Management (ISHAD2018), Sakarya, Turkey, 4 - 06 May 2018, pp.1-11
- XII. **Evaluation of Motion Selection and Scaling for the Nonlinear Seismic Analysis of Concrete Gravity Dams**  
SOYSAL B. F. , AY B. Ö. , ARICI Y.  
4th International Conference on Earthquake Engineering and Seismology, Eskişehir, Turkey, 11 - 13 October 2017, pp.1-8
- XIII. **Evaluation of the Ground Motion Scaling Procedures for Concrete Gravity Dams**  
SOYSAL B. F. , AY B. Ö. , ARICI Y.  
10th International Conference on Structural Dynamics (EURODYN), Rome, Italy, 10 - 13 September 2017, vol.199, pp.844-849
- XIV. **Multi Criteria Decision Parameters in Evaluation of Temporary Housing Units**  
Akdede N., Ay B. Ö.  
The 24th International Conference on Multiple Criteria Decision Making, Ottawa, Canada, 10 - 14 July 2017
- XV. **The Motivation Behind Designing and Constructing Twisted Tall Buildings**  
Bilgen S., Ay B. Ö.  
World Multidisciplinary Civil Engineering-Architecture-Urban Planning Symposium, Praha, Czech Republic, 12 - 16 June 2017, pp.1
- XVI. **Numerical and Experimental Investigation of Aerodynamic Loads for Tall Buildings with Prismatic and Twisted Forms**  
Orbay Akcengiz E., Sezer Uzol N., Bilgen S., Ay B. Ö. , Ostovan Y.  
The International Conference on Wind Energy Harvesting, Coimbra, Portugal, 20 - 21 April 2017
- XVII. **Evaluation of Changing Building Characteristics in Turkey**  
Ay B. Ö. , Eroğlu Azak T., Erberik M. A.  
12th International Congress on Advances in Civil Engineering, İstanbul, Turkey, 21 - 23 September 2016, pp.1-7
- XVIII. **Evaluation of Ground motion Record Scaling and Selection Methods for Seismic Design and Assessment of Structures**  
Ay B. Ö. , Pinho R., Crowley H.  
3rd Turkish Conference on Earthquake Engineering and Seismology, İzmir, Turkey, 14 - 16 October 2015
- XIX. **A Statistical Study on Geometrical Properties of Turkish Reinforced Concrete Building Stock**  
Eroğlu Azak T., Ay B. Ö. , Akkar D. S.  
2nd European Conference on Earthquake Engineering and Seismology, İstanbul, Turkey, 24 - 29 August 2014
- XX. **Scaling and Selection of Ground Motion Records for Nonlinear Response History Analysis of Structures**  
Ay B. Ö. , Akkar D. S.  
15th World Conference on Earthquake Engineering, Lisbon, Portugal, 24 - 28 September 2012
- XXI. **Selecting and Scaling of Real Accelerograms**  
Ay B. Ö. , Akkar D. S.  
14th European Conference on Earthquake Engineering, Ohrid, Macedonia, 30 August - 03 September 2010
- XXII. **Selecting and Scaling of Real Accelerograms to Reduce the Scatter in Dynamic Response**  
Ay B. Ö. , Akkar D. S.  
9th US National and 10th Canadian Conference on Earthquake Engineering, Toronto, Canada, 25 - 29 July 2010
- XXIII. **A Critique on the Turkish Earthquake Code Regulations Regarding Masonry Construction**  
Erberik M. A. , Aldemir A., Ay B. Ö.  
8th International Seminar on Structural Masonry, İstanbul, Turkey, 5 - 07 November 2008
- XXIV. **A Simplified Procedure for Estimating the Inelastic Drift Demands on Frame Structures**  
Ay B. Ö. , Akkar D. S.  
14th World Conference on Earthquake Engineering, Beijing, China, 12 - 17 October 2008
- XXV. **Türkiye deki Az ve Orta Katlı Betonarme Yapıların Deprem Güvenliği Açısından İncelenmesi**

Ay B. Ö. , Erberik M. A.

6th National Conference on Earthquake Engineering, İstanbul, Turkey, 16 - 20 October 2007

**XXVI. Fragility Based Assessment of the Structural Deficiencies in Turkish RC Frame Structures**

Ay B. Ö. , Erberik M. A. , Akkar D. S.

1st European Conference on Earthquake Engineering and Seismology, Geneve, Switzerland, 3 - 08 September 2006

## Supported Projects

AY B. Ö. , ORBAY E., BİLGEN S., SEZER UZOL N., Project Supported by Higher Education Institutions, Burgulu Yüksek Binaların Taşıyıcı Sistem ve Aerodinamik Özelliklerinin İncelenmesi, 2016 - 2019

AY B. Ö. , AKDEDE N., Project Supported by Higher Education Institutions, Geçici barınma ünitelerinin çok ölçütlü karar analiz yöntemleri ile değerlendirilmesi, 2017 - 2017

AY B. Ö. , Eroğlu Azak T., ERBERİK M. A. , Project Supported by Higher Education Institutions, Deprem Tehlikesine Maruz Bina Envanterinin İstatistikî Yöntemler ile İncelenmesi, 2016 - 2016

## Memberships / Tasks in Scientific Organizations

Council on Tall Buildings and Urban Habitat , Member, 2018 - Continues

## Scientific Refereeing

TEKNİK DERGI, SCI Journal, May 2021

METU JOURNAL OF THE FACULTY OF ARCHITECTURE, Journal Indexed in AHCI, April 2021

TÜRK DEPREM ARAŞTIRMA DERGİSİ, Other Indexed Journal, June 2020

SOIL DYNAMICS AND EARTHQUAKE ENGINEERING, Journal Indexed in SCI-E, December 2019

EARTHQUAKES AND STRUCTURES, Journal Indexed in SCI-E, October 2019

ENGINEERING STRUCTURES, SCI Journal, September 2018

ENGINEERING STRUCTURES, SCI Journal, July 2018

ENGINEERING STRUCTURES, SCI Journal, September 2017

ENGINEERING STRUCTURES, SCI Journal, June 2017

METU JOURNAL OF THE FACULTY OF ARCHITECTURE, Journal Indexed in AHCI, May 2017

METU JOURNAL OF THE FACULTY OF ARCHITECTURE, Journal Indexed in AHCI, March 2017

METU JOURNAL OF THE FACULTY OF ARCHITECTURE, Journal Indexed in AHCI, February 2016

METU JOURNAL OF THE FACULTY OF ARCHITECTURE, Journal Indexed in AHCI, August 2015

METU JOURNAL OF THE FACULTY OF ARCHITECTURE, Journal Indexed in AHCI, June 2015

METU JOURNAL OF THE FACULTY OF ARCHITECTURE, Journal Indexed in AHCI, January 2015

METU JOURNAL OF THE FACULTY OF ARCHITECTURE, Journal Indexed in AHCI, December 2014

METU JOURNAL OF THE FACULTY OF ARCHITECTURE, Journal Indexed in AHCI, July 2014

EARTHQUAKE SPECTRA, SCI Journal, April 2014

EARTHQUAKE SPECTRA, SCI Journal, August 2013

## Scientific Research / Working Group Memberships

Structure & Design Research Group, ORTA DOĞU TEKNİK ÜNİVERSİTESİ, Turkey,

[https://www.instagram.com/sd\\_rgroup/](https://www.instagram.com/sd_rgroup/), 2017 - Continues

## **Edit Congress and Symposium Activities**

İnşaat Mühendisleri Odası Yüksek Yapılar Çalıştayı, Invited Speaker, Ankara, Turkey, 2016

Çevre ve Şehircilik Bakanlığı Yüksek Yapıların Tasarım, Modelleme ve Yapım Kuralları Eğitimi, Invited Speaker, Ankara, Turkey, 2015

SAIE 2014, Invited Speaker, Bologna, Italy, 2014

## **Citations**

Total Citations (WOS):190

h-index (WOS):6