

## **Prof. ERAY BARAN**

### **Personal Information**

**Office Phone:** [+90 312 210 7475](tel:+903122107475)

**Email:** [erayb@metu.edu.tr](mailto:erayb@metu.edu.tr)

**Web:** <https://avesis.metu.edu.tr/erayb>

### **International Researcher IDs**

ScholarID: A4qb0roAAAAJ

ORCID: 0000-0002-0240-803X

Publons / Web Of Science ResearcherID: ABA-7243-2020

ScopusID: 35101442800

Yoksis Researcher ID: 221333

### **Education Information**

Doctorate, University of Minnesota, Civil Engineering, United States Of America 2003 - 2006

Postgraduate, University of Minnesota, Civil Engineering, United States Of America 1999 - 2003

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, Turkey 1994 - 1999

### **Foreign Languages**

English, C2 Mastery

### **Dissertations**

Doctorate, Strength and Stability of Prestressed Concrete Pedestrian Bridges under Vehicular Impact, University Of Minnesota, 2006

Postgraduate, Effect of Pre-Release Cracks on Prestressed Concrete Bridge Girders, University Of Minnesota, 2003

### **Research Areas**

Structural Mechanics, Building Stability, Prefabrication, Buildings (industrial, commercial and public), Structural Engineering, Steel Structures, Performance of Constructed Facilities, Repair and Strengthening in Buildings

### **Academic Titles / Tasks**

Professor, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, 2019 - Continues

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, 2014 - 2019

Associate Professor, Atilim University, Faculty Of Engineering, Department Of Civil Engineering, 2013 - 2014

Assistant Professor, Atilim University, Faculty Of Engineering, Department Of Civil Engineering, 2007 - 2013

## Academic and Administrative Experience

Deputy Head of Department, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, 2015 - 2019

## Courses

Fundamentals of Steel Design, Undergraduate, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016

Design of Steel Structures, Undergraduate, 2018 - 2019

Prestressed Concrete, Undergraduate, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016

Reinforced Concrete Fundamentals, Undergraduate, 2016 - 2017, 2015 - 2016, 2014 - 2015

Engineering Mechanics II, Undergraduate, 2014 - 2015

Uncertainty And Data Analysis, Undergraduate, 2014 - 2015

## Advising Theses

Baran E., Experimental investigation of structural systems made of sheathed cold-formed steel wall panels, Doctorate, B.MERT(Student), 2023

Baran E., Nonlinear performance analysis of steel lattice energy distribution towers, Postgraduate, Y.ANIL(Student), 2022

Baran E., Seismic performance assessment of reinforced concrete overpass bridges with nonlinear analyses, Postgraduate, T.CANTÜRK(Student), 2022

Baran E., NUMERICAL MODELING OF COLD-FORMED STEEL SHEAR WALLS UNDER LATERAL LOADING, Postgraduate, Y.Topcuođlugil(Student), 2019

BARAN E., Experimental and numerical investigation of CFS-concrete composite trusses, Postgraduate, H.GÜLDÜR(Student), 2018

BARAN E., Experimental and analytical investigation of cold-formed steel floor trusses under gravity loading, Postgraduate, Ç.DİZDAR(Student), 2017

Baran E., Nonlinear fiber modeling of steel-concrete partially composite beams with channel shear connectors, Postgraduate, A.ÖZTÜRK(Student), 2017

BARAN E., Flexural behavior of reinforced concrete beams having various layers of conventional and steel fiber reinforced concrete, Postgraduate, M.NOZAD(Student), 2015

BARAN E., Numerical analysis of bolted connections in steel lattice transmission towers, Postgraduate, A.DRAISAWI(Student), 2015

Baran E., Mertol H. C., Flexural Behavior of Lightly and Heavily Reinforced Steel Fiber Concrete Beams, Postgraduate, H.Jibril(Student), 2014

BARAN E., Flexural behavior of precast prestressed concrete hollow core slabs with cast-in-place concrete topping, Postgraduate, S.İBRAHİM(Student), 2014

BARAN E., Behavior of bolted tension splice connections in steel lattice overhead transmission line towers, Postgraduate, G.ŞEN(Student), 2014

BARAN E., Lateral load behavior of cold-formed steel wall panels, Postgraduate, H.ÇAĞATAY(Student), 2013

BARAN E., Development of steel-concrete hybrid connections for precast concrete moment-resisting frames, Postgraduate, M.KURTOĞLU(Student), 2013

BARAN E., Investigating use of untensioned prestressing strands in reinforced concrete flexural members, Postgraduate, T.ARSAVA(Student), 2011

## Jury Memberships

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **An investigation and design of novel moment-resisting beam-column connections for precast concrete construction**  
Mahamid M., Torra-Bilal I., BARAN E.  
PCI JOURNAL, no.4, pp.45-64, 2024 (SCI-Expanded)
- II. **FEMA P695 seismic performance evaluation of Cold-formed steel buildings with different shear wall strengths and stiffnesses**  
Pehlivan B. M., BARAN E., TOPKAYA C.  
Soil Dynamics and Earthquake Engineering, vol.173, 2023 (SCI-Expanded)
- III. **Influence of the proportion of FRP to steel reinforcement on the strength and ductility of hybrid reinforced concrete beams**  
KARTAL S., KALKAN İ., MERTOL H. C., BARAN E.  
EUROPEAN JOURNAL OF ENVIRONMENTAL AND CIVIL ENGINEERING, vol.27, no.12, pp.3546-3565, 2023 (SCI-Expanded)
- IV. **Investigation of CFS shear walls with two-sided sheathing and dense fastener layout**  
PEHLİVAN B. M., BARAN E., TOPKAYA C., Isik Y. T.  
Thin-Walled Structures, vol.180, 2022 (SCI-Expanded)
- V. **Cyclic behaviour of precast beam-to-column connections: An experimental and numerical investigation**  
Torra-Bilal I., Mahamid M., BARAN E.  
STRUCTURES, vol.35, pp.939-957, 2022 (SCI-Expanded)
- VI. **Performance of a moment resisting beam-column connection for precast concrete construction**  
BARAN E., Mahamid M., BARAN M., Kurtoglu M., Torra-Bilal I.  
Engineering Structures, vol.246, 2021 (SCI-Expanded)
- VII. **Experimental and numerical analysis of cold-formed steel floor trusses with concrete filled compression chord**  
GÜLDÜR H., BARAN E., TOPKAYA C.  
Engineering Structures, vol.234, 2021 (SCI-Expanded)
- VIII. **Behavior of channel connectors in steel-concrete composite beams with precast slabs**  
ARIKOĞLU P., BARAN E., TOPKAYA C.  
Journal of Constructional Steel Research, vol.172, 2020 (SCI-Expanded)
- IX. **An energy dissipating hold down device for cold-formed steel structures**  
Pehlivan B. M., Baran E., Topkaya C.  
Journal of Constructional Steel Research, vol.166, 2020 (SCI-Expanded)
- X. **Nonlinear Fiber Modeling of Steel-Concrete Partially Composite Beams with Channel Connectors**  
Ozturk A., Baran E., Tort C.  
KSCE JOURNAL OF CIVIL ENGINEERING, vol.23, pp.2227-2242, 2019 (SCI-Expanded)
- XI. **Strength and stiffness of floor trusses fabricated from cold-formed steel lipped channels**  
Dizdar C., Baran E., Topkaya C.  
ENGINEERING STRUCTURES, vol.181, pp.437-457, 2019 (SCI-Expanded)
- XII. **Testing and analysis of different hold down devices for CFS construction**  
Pehlivan B. M., Baran E., Topkaya C.  
JOURNAL OF CONSTRUCTIONAL STEEL RESEARCH, vol.145, pp.97-115, 2018 (SCI-Expanded)
- XIII. **Experimental and numerical analysis of a bolted connection in steel transmission towers**  
Baran E., Akis T., Sen G., Draisawi A.  
JOURNAL OF CONSTRUCTIONAL STEEL RESEARCH, vol.121, pp.253-260, 2016 (SCI-Expanded)

- XIV. **Flexural behavior of lightly and heavily reinforced steel fiber concrete beams**  
Mertol H. C., Baran E., Bello H. J.  
CONSTRUCTION AND BUILDING MATERIALS, vol.98, pp.185-193, 2015 (SCI-Expanded)
- XV. **Effects of cast-in-place concrete topping on flexural response of precast concrete hollow-core slabs**  
Baran E.  
ENGINEERING STRUCTURES, vol.98, pp.109-117, 2015 (SCI-Expanded)
- XVI. **Damage in Reinforced Concrete Buildings during the 2011 Van Turkey Earthquakes**  
BARAN E., MERTOL H. C., GÜNEŞ B.  
Journal Of Performance Of Constructed Facilities, vol.28, pp.466-479, 2014 (SCI-Expanded)
- XVII. **Behavior of steel-concrete partially composite beams with channel type shear connectors**  
Baran E., Topkaya C.  
JOURNAL OF CONSTRUCTIONAL STEEL RESEARCH, vol.97, pp.69-78, 2014 (SCI-Expanded)
- XVIII. **Performance of a Prestressed Concrete Pedestrian Bridge System under Equivalent Static Lateral Impact Loads**  
Baran E., Schultz A., French C.  
Journal Of Performance Of Constructed Facilities, vol.27, pp.450-459, 2013 (SCI-Expanded)
- XIX. **Behavior of cold-formed steel wall panels under monotonic horizontal loading**  
Baran E., Alca Ç.  
JOURNAL OF CONSTRUCTIONAL STEEL RESEARCH, vol.79, pp.1-8, 2012 (SCI-Expanded)
- XX. **Flexural Strength Design Criteria for Concrete Beams Reinforced with High-Strength Steel Strands**  
Baran E., Arsava T.  
ADVANCES IN STRUCTURAL ENGINEERING, vol.15, pp.1781-1792, 2012 (SCI-Expanded)
- XXI. **An experimental study on channel type shear connectors**  
Baran E., TOPKAYA C.  
JOURNAL OF CONSTRUCTIONAL STEEL RESEARCH, vol.74, pp.108-117, 2012 (SCI-Expanded)
- XXII. **Pull-out behavior of prestressing strands in steel fiber reinforced concrete**  
BARAN E., AKIŞ T., YEŞİLMEN S.  
CONSTRUCTION AND BUILDING MATERIALS, vol.28, no.1, pp.362-371, 2012 (SCI-Expanded)
- XXIII. **Experimental Determination of Resistance Characteristics of Support Details Used in Prestressed Concrete Bridge Girders**  
Baran E., Rohne R., French C., Schultz A.  
Journal Of Bridge Engineering, vol.14, pp.319-326, 2009 (SCI-Expanded)
- XXIV. **Behavior of girder floor beam connections in prestressed concrete pedestrian bridges subjected to lateral impact loads**  
Baran E., Schultz A., French C.  
Journal Of Structural Engineering-Asce, vol.133, pp.1670-1681, 2007 (SCI-Expanded)
- XXV. **Analysis of the flexural strength of prestressed concrete flanged sections**  
Baran E., Schultz A., French C.  
PCI JOURNAL, vol.50, pp.74-94, 2005 (SCI-Expanded)
- XXVI. **Analysis of the effects of vertical pre-release cracks on prestressed concrete bridge girders**  
Baran E., Shield C., French C., Wyffels T.  
PCI JOURNAL, vol.49, pp.114-131, 2004 (SCI-Expanded)

## Articles Published in Other Journals

- I. **A Numerical Investigation of Longitudinal Track–Bridge Interaction in Simply Supported Precast Concrete Girder Railway Bridges**  
Ozturk A., Baran E., Askan Gündoğan A.  
Practice Periodical on Structural Design and Construction, vol.29, no.3, 2024 (ESCI)
- II. **A Hybrid Precast Concrete Beam-Column Connection**

Baran E., Baran M., Kurtođlu M.

Türkiye Prefabrik Birliđi Beton Prefabrikasyon Dergisi, no.107, pp.16-27, 2013 (Peer-Reviewed Journal)

## Refereed Congress / Symposium Publications in Proceedings

- I. **An Experimental and Analytical Study on Cold Formed Steel Floor Trusses with Bare and Concrete Filled Compression Chords**  
Dizdar Ç., GÜLDÜR H., BARAN E., TOPKAYA C.  
Cold-Formed Steel Research Consortium Colloquium, United States Of America, 17 October 2022
- II. **ANALYSIS AND DESIGN OF PRECAST BEAM-TO-COLUMN CONNECTIONS UNDER CYCLIC LOADING**  
Mahamid M., Baran E., Torra-Bilal I., Bilal K.  
17th World Conference on Earthquake Engineering, Sendai, Japan, 13 - 18 September 2020, pp.1-12
- III. **BEHAVIOR OF HOLD DOWN DEVICES USED IN CFS CONSTRUCTION**  
Pehlivan B. M., Baran E., Topkaya C.  
13th INTERNATIONAL CONGRESS ON ADVANCES IN CIVIL ENGINEERING, İzmir, Turkey, 12 - 14 September 2018
- IV. **NUMERICAL MODELING OF COLD-FORMED STEEL SHEAR WALLS WITH WOOD-BASED SHEATHING UNDER LATERAL LOADING**  
Topcuođlugil Y., Baran E., Topkaya C.  
13th INTERNATIONAL CONGRESS ON ADVANCES IN CIVIL ENGINEERING, İzmir, Turkey, 12 - 14 September 2018
- V. **Influence of FRP Reinforcement Ratio on the Ductility Values of Concrete Beams with Hybrid FRP-Steel Reinforcement**  
KARTAL S., KALKAN İ., MERTOL H. C., BARAN E.  
13th INTERNATIONAL CONGRESS ON ADVANCES IN CIVIL ENGINEERING, 12 - 14 September 2018
- VI. **U-Profil Kayma Bađlantısı Kullanılan Çelik-Beton Kısmi Kompozit Kirişlerin Doğrusal Olmayan Davranışının Fiber-Kesit Analizi ile İncelenmesi**  
Öztürk A., Baran E., Tort C.  
7. Çelik Yapılar Sempozyumu, Gaziantep, Turkey, 26 - 27 October 2017
- VII. **Improvement of Mechanical Performance in Different Concrete Applications through Use of Steel Fibers**  
BARAN E., MERTOL H. C., AKIŞ T.  
Sustainable Construction Materials and Technologies Conference, 7 - 11 August 2016
- VIII. **AN EXPERİMENTAL STUDY ON A HYBRİD PRECAST CONCRETE BEAM-COLUMN CONNECTION**  
Baran E., Baran M., Kurtođlu M.  
10TH INTERNATIONAL CONGRESS ON ADVANCES IN CIVIL ENGINEERING, Ankara, Turkey, 17 - 20 October 2012, pp.1-10

## Expert Reports

- I. **Kule Vinç**  
Baran E.  
Pi Makina, pp.25, Ankara, 2019

## Supported Projects

BARAN E., KILIÇ B. T., Project Supported by Higher Education Institutions, Elektrik Dađıtım Direklerinde Kullanılmak Üzere Lif Takviyeli Polimer Kompozit Köşebentlerden Oluşan Konsollar Geliştirilmesi, 2022 - Continues  
BARAN E., TOPCUOĐLUGİL Y., Project Supported by Higher Education Institutions, HAFİF ÇELİK DUVAR PANELLERİNDE KULLANILAN VİDALARIN DENEYSSEL OLARAK İNCELENMESİ, 2018 - 2022

BARAN E., MERT PEHLİVAN B., Project Supported by Higher Education Institutions, HAFİF ÇELİK YAPI SİSTEMLERİNDE DÖŞEME-DUVAR BAĞLANTILARININ DENEYSEL OLARAK İNCELENMESİ, 2018 - 2022

BARAN E., GÜLDÜR H., Project Supported by Higher Education Institutions, HAFİF ÇELİK VE BETON KOMPOZİT DÖŞEME KAFES KİRİŞLERİNİN DENEYSEL OLARAK İNCELENMESİ, 2018 - 2022

BARAN E., PEHLİVAN B. M., Project Supported by Higher Education Institutions, Hafif Çelik Yapı Sistemlerinde Kullanılan Döşeme-Duvar Bağlantılarının Deneysel Olarak İncelenmesi, 2018 - 2022

Baran E., Technopark, Enerji Nakil Hatlarında Kullanılan, 2019 - 2020

BARAN E., TUBİTAK Project, Hafif Çelik Duvar Panellerinden Oluşan Bina Sistemlerinin Yatay Yük Altındaki Yapısal Davranışlarının İncelenmesi, 2015 - 2018

BARAN E., DİZDAR Ç., Project Supported by Higher Education Institutions, Hafif Çelik Binalarda Kullanılan Kafes Kirişli Döşeme Sisteminin İncelenmesi, 2016 - 2016

BARAN E., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2016

BARAN E., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2016

BARAN E., TUBİTAK Project, U Profil Mekanik Kayma Bağlantısı Elemanları Kullanılan Çelik Beton Kısmi Kompozit Kirişlerin Davranışının İncelenmesi, 2013 - 2013

BARAN E., TUBİTAK Project, Önüretimli Beton Kolon Kiriş Bağlantıları İçin Yapısal Çelik Elemanların Kullanıldığı Alternatif Bağlantıların Geliştirilmesi, 2011 - 2012

## Patent

Baran E., Topkaya C., Pehlivan B. M., Enerji Sönümleyici Bağlantı Aparatı, Patent, CHAPTER E Constructed Constructions (Construction), The Invention Registration Number: 2017 04580 , Standard Registration, 2021

## Activities in Scientific Journals

Practice Periodical on Structural Design and Construction (ASCE), Assistant Editor/Section Editor, 2020 - Continues

Türk Yapısal Çelik Derneği Çelik Yapılar Dergisi, Publication Committee Member, 2017 - Continues

## Memberships / Tasks in Scientific Organizations

Türkiye Bina Deprem Yönetmeliği Yönlendirme Komisyonu, Member, 2019 - Continues

CIGRE Türkiye B2 Havai Hatlar Komitesi, Member, 2017 - Continues

## Scientific Refereeing

BULLETIN OF EARTHQUAKE ENGINEERING, SCI Journal, December 2023

PRACTICE PERIODICAL ON STRUCTURAL DESIGN AND CONSTRUCTION, National Scientific Refreed Journal, December 2023

Journal of Structural Integrity and Maintenance, SCI Journal, October 2023

TEKNİK DERGİ/TECHNICAL JOURNAL OF TURKISH CHAMBER OF CIVIL ENGINEERS, SCI Journal, August 2023

Engineering Structures, National Scientific Refreed Journal, July 2023

Technopark, Middle East Technical University, Turkey, June 2023

TUBİTAK Project, 1002 - Quick Support Program, Middle East Technical University, Turkey, June 2023

Technopark, Middle East Technical University, Turkey, April 2023

PRACTICE PERIODICAL ON STRUCTURAL DESIGN AND CONSTRUCTION, SCI Journal, March 2023

Engineering Structures, SCI Journal, January 2023

PRACTICE PERIODICAL ON STRUCTURAL DESIGN AND CONSTRUCTION, SCI Journal, January 2023  
TEKNIK DERGI/TECHNICAL JOURNAL OF TURKISH CHAMBER OF CIVIL ENGINEERS, SCI Journal, January 2023  
Engineering Structures, SCI Journal, July 2022  
TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, TÜBİTAK, Turkey, June 2022  
TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, TÜBİTAK, Turkey, June 2022  
PRACTICE PERIODICAL ON STRUCTURAL DESIGN AND CONSTRUCTION, Journal Indexed in ESCI, April 2022  
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, SCI Journal, April 2022  
Engineering Structures, SCI Journal, April 2022  
Technopark, Middle East Technical University, Turkey, March 2022  
TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, TÜBİTAK, Turkey, March 2022  
Technopark, ODTÜ Teknokent, Turkey, September 2021  
TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, TÜBİTAK, Turkey, July 2021  
Project Supported by Higher Education Institutions, BAP Research Project, Ataturk University, Turkey, June 2021  
ARABIAN JOURNAL FOR SCIENCE AND ENGINEERING, Other Indexed Journal, May 2021  
TEKNIK DERGI/TECHNICAL JOURNAL OF TURKISH CHAMBER OF CIVIL ENGINEERS, Journal Indexed in SCI-E, April 2021  
PRACTICE PERIODICAL ON STRUCTURAL DESIGN AND CONSTRUCTION, Journal Indexed in ESCI, February 2021  
Technopark, ODTÜ Teknokent, Turkey, November 2020  
Project Supported by Higher Education Institutions, BAP Research Project, Sakarya University Of Applied Sciences, Turkey, October 2020  
ENGINEERING STRUCTURES, Journal Indexed in SCI-E, September 2020  
Project Supported by Other Official Institutions, AFAD UDAP, Turkey, September 2020  
Technopark, Middle East Technical University, Turkey, July 2020  
ENGINEERING STRUCTURES, SCI Journal, March 2020  
ENGINEERING STRUCTURES, SCI Journal, October 2019  
ANADOLU UNIVERSITY JOURNAL OF SCIENCE AND TECHNOLOGY - A APPLIED SCIENCES AND ENGINEERING, National Scientific Refreed Journal, August 2019  
Technopark, Middle East Technical University, Turkey, August 2019  
Technopark, Middle East Technical University, Turkey, July 2019  
TUBITAK Project, 3501 - National Young Researcher Career Development Program, Middle East Technical University, Turkey, April 2019  
Journal Of The Faculty Of Engineering And Architecture Of Gazi University, SCI Journal, February 2019  
ENGINEERING STRUCTURES, SCI Journal, January 2019  
IET GENERATION TRANSMISSION & DISTRIBUTION, Journal Indexed in SCI-E, January 2018  
JOURNAL OF PERFORMANCE OF CONSTRUCTED FACILITIES, SCI Journal, January 2018  
ENGINEERING STRUCTURES, SCI Journal, January 2018  
ACI STRUCTURAL JOURNAL, SCI Journal, January 2017  
THIN-WALLED STRUCTURES, SCI Journal, January 2017  
ENGINEERING STRUCTURES, SCI Journal, January 2017  
THIN-WALLED STRUCTURES, SCI Journal, January 2017  
ENGINEERING STRUCTURES, SCI Journal, January 2017  
THIN-WALLED STRUCTURES, National Scientific Refreed Journal, January 2017  
ACI STRUCTURAL JOURNAL, SCI Journal, January 2017

## Metrics

Publication: 37  
Citation (WoS): 503  
Citation (Scopus): 588  
H-Index (WoS): 12  
H-Index (Scopus): 13

## **Non Academic Experience**

Company, Walter P Moore and Associates, Las Vegas, Nevada, USA  
Walter P Moore and Associates