

Daniel P. Jenny Research Fellowship Awards for 2021

The PCI Research and Development Council (Greg Force, chair) is pleased to announce the award of five Daniel P. Jenny Research Fellowships for the 2021-2022 academic year. The fellowship recipients are Mahsa Mortazi, Lily Polster, Mohammad Qambar, Shadi Firouz Ranjbar, and Rachel Wagner.

The fellowship program connects students and faculty with precast producers and industry experts to advance research in precast concrete, providing a valuable experience to the student, faculty, and the precast concrete industry. PCI especially thanks all producers who provide in-kind support for universities proposing research ideas.

Thermal Bowing in Partially Composite Precast Insulated Wall Panels

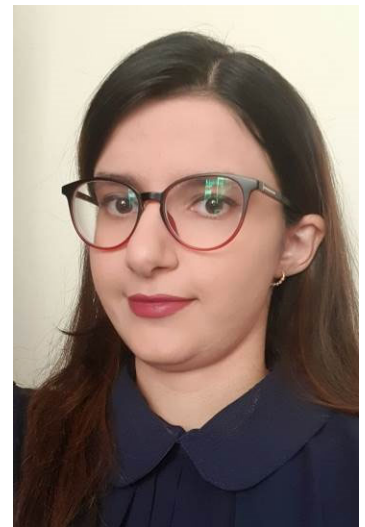
University: The University of Nebraska-Lincoln

Faculty advisor: Marc Maguire, Ph.D.

Producer support: Gage Brothers

Additional support: Altus Group, Dayton Superior, HK Composites, and IconX

In the application, Mortazi wrote “Understanding thermal bowing is of practical importance to the precast concrete industry as it amplifies second order effects and generates forces that are currently not considered. The research products will inform every day design and result in a more rational, but simple approach to a complicated problem.”



Mahsa Mortazi

Precast Concrete Yielding Elements for Buckling Restrained Braced Frames

University: The University of Notre Dame

Faculty advisor: Yahya (Gino) Kurama, Ph.D., P.E.

Producer support: Clark Pacific, Tindall, and Metromont

Additional support: Seaboard Services of Virginia, Inc., Buehler Engineering, and Englekirk Structural Engineers

In the application, Polster wrote “I am looking forward to the possibility of participating in research on BRBs in seismic precast frames. Investigating and developing a new type of precast element for the design of all-precast BRB frames will be innovative and likely prove useful to the industry in terms of efficiency and effectiveness.”



Lily Polster

Implementing Dapped Ends in Very Thin UHPC Stems

University: North Carolina State University

Faculty advisors: Gregory Lucier, Ph.D. and Giorgio Proestos, Ph.D.

Producer support: Tindall and Metromont

Additional support: e.construct USA, Wiss Janney Elstner Associates, Inc., and Georgia/Carolinas PCI

In the application, Qambar wrote “The proposed research we hope to undertake aims to look at introducing the dapped ends condition into Ultra-High Performance Concrete (UHPC) members. This project combines the challenge of designing an end condition that involves a complex distribution of stresses with an exciting material that has made previously impractical designs a reality.”



Mohammad Qambar

Resistance of Hollow Core Slab Floors to Concentrated and Line Loads

University: The University of Texas at San Antonio

Faculty advisor: Arturo E. Schultz, Ph.D.

Producer support: Molin Concrete Products, Oldcastle Infrastructure, Gate Precast Company, and Manco Structures

Additional support: Precast Engineering Systems

In the application, Ranjbar wrote “This proposed study embodies one of my goals to develop new approaches for advanced structural design of precast concrete systems and ensuring adequate structural safety. I wish to focus my research work on experimental and analytical research for formulation of methods for the design of safe and serviceable precast concrete structures in modern buildings..”



Shadi Firouz Ranjbar

Immediate Deflection Calculations for Class T and C Prestressed Sections in Flexure

University: The University of Minnesota Duluth

Faculty advisor: Andrea Schokker, Ph.D., P.E., LEED AP

Producer support: Metromont, Concrete Technology Corporation, Molin Concrete Products, Shockey Precast

In the application, Wagner wrote “Understanding material behavior fascinates me because I want to know the complexities around how members deform or react to different situations and how designers can predict these.”



Rachel Wagner