PCI FOUNDATION
PCI Foundation is the educational entity that supports the Precast/Prestressed Concrete Industry
200 West Adams Street, Suite 2100, Chicago, IL 60606

NEWS RELEASE

RESEARCH INTO OPTIMIZING PRECAST CONCRETE FOR EXPLOSION AND BLAST LOADING

University of Texas PhD Candidate Awarded Alan Mattock Scholarship from PCI Foundation

CHICAGO, August 26, 2019 --- The PCI Foundation has awarded the $4,000 2019 Alan Mattock Scholarship to Thomas Mander, a PhD candidate at University of Texas Civil Engineering Department for his research on *Unified Blast Response Limits for Precast Concrete Wall Panels*. Mander works with advisor Adolfo Matamoras, Professor and Peter T. Flawn Chair at University of Texas San Antonio (UTSA).

Thomas Mander Recipient of 2019-2020 Alan Mattock Scholarship from the PCI Foundation

Mander's research will develop a new design methodology for the assessment and design of precast concrete wall panels subjected to blast loading. The proposed methodology will provide guidelines to optimize precast panel's performance under blast loading, making precast panel design and construction more competitive and increasing market share for structural and architectural wall panels. Proposed limits will depend on material and geometric parameters to credit wall panels that exhibit ductile characteristics. This represents a significant departure from existing criteria and will lead to safer and more economical designs.

"My passion for precast concrete started during my undergraduate studies and continued to develop during my work experience," says Mander. "Working as a structural blast consultant, my daily activities focused on analyzing and designing buildings subjected to explosion hazards. Throughout these projects, I became concerned with the analysis methods and acceptance criteria used for precast structures in blast documents. This led me to research the deformation capacity of reinforced and precast concrete members at a fundamental level. In researching this topic, one of the principal papers I came across was by Dr. Mattock titled "Rotational Capacity of Hinging Regions in Reinforced Concrete Beams."

"Dr. Mattock completed an analytical and experimental program with the objective of proposing rotational limits for RC beams. The paper gave me insight to design parameters that influence the rotational capacity of concrete members, and ultimately how the rotational capacity can be improved through a well-detailed design. Surprisingly, although this paper was published over 50 years ago, current blast practices do not reflect the practical conclusions presented. The fact that Dr. Mattock's research is still relevant, and arguably more sophisticated than present blast industry methodologies, is a testament to his contributions to civil engineering."

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> Thomas Mander, recipient of the 2019-2020 PCIF Alan Mattock scholarship.

Mander was also one of five graduate students to receive a 2019-2020 PCI Daniel P. Jenny Fellowship. Based on his outstanding application, the PCI Research and Development Committee recommended him for the Alan Mattock Scholarship.

ABOUT DR. ALAN MATTOCK - Alan Mattock was a professor at the University of Washington and was a driving force in the precast/prestressed concrete industry, particularly in the area of research. He was an active participant in the PCI Research and Development committee. Mattock retired in 1990 after a career filled with awards, high-profile committee work, and many published papers. He passed away on June 6, 2014. After his death, some of his contemporaries and others who worked with him on PCI projects over the years felt that a memorial scholarship that recognized scholars interested in research would be appropriate in his name.

ABOUT THE PCI FOUNDATION - Since 2001, the PCI Foundation has been the educational entity that supports the Precast/Prestressed Concrete industry. The mission of the PCI Foundation is to foster educational initiatives focused on innovative approaches to the integrated and sustainable use of precast concrete design, fabrication, and construction. It is a charitable 501(c) 3 corporation, based in Chicago, which supports the inclusion of precast concrete programs at accredited colleges and universities. To learn more, visit the PCI Foundation website at www.PCI-Foundation.org.

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Media contact: Marty McIntyre, PCI Foundation
martymci@pci-foundation.or or (708) 386-3715