

1st International SYMPOSIUM ON STEEL TO CONCRETE CONNECTIONS 2026								
Monday, August 3 rd			Tuesday, August 4 th			Wednesday, August 5 th		
Elizabeth Fowler Hall			Elizabeth Fowler Hall			Elizabeth Fowler Hall		
Registration (8:30 - 9:15)			Keynote lecture by Dr. Devin Huber Lecture by Professor Robert Connor (9:00 - 10:30)			Keynote lecture by Professor Giovanni Muciaccia Lecture by Professor Akanshu Sharma (9:00 - 10:30)		
Inauguration & Lecture by Professor Amit. H Varma (9:15 - 10:45)								
Stewart Center			Stewart Center			Stewart Center		
Coffee break (10:45 - 11:20)			Coffee break (10:30 - 11:00)			Coffee break (10:30 - 11:00)		
Sessions (11:20 - 12:30)			Sessions (11:00 - 12:30)			Sessions (11:00 - 12:30)		
1A	1B	1C	3A	3B	3C	6A	6B	6C
Room 202	Room 206	Room 214-AB	Room 202	Room 206	Room 214-AB	Room 202	Room 206	Room 214-AB
Anchorage Experiments I	Anchorage Design	Composite Walls I	Numerical Modeling of Anchorage I	Anchorage with Reinforcement	Composite Walls II	Numerical Modeling of Anchorage II	Applications of Anchorage in Strengthening	Composite Walls III
Purdue Memorial Union			Purdue Memorial Union			Purdue Memorial Union		
Lunch (12:30 - 14:00)			Lunch (12:30 - 14:00)			Lunch (12:30 - 14:00)		
Stewart Center			Stewart Center			Stewart Center		
Sessions (14:00 - 15:30)			Sessions (14:00 - 15:30)			Sessions (14:00 - 15:30)		
2A	2B	2C	4A	4B	4C	7A	7B	7C
Room 202	Room 206	Room 214-AB	Room 202	Room 206	Room 214-AB	Room 202	Room 206	Room 214-AB
Adhesive Anchors and Post-Installed Bars I	Special Materials I	Composite Bridges and Slabs	Adhesive Anchors and Post-Installed Bars II	Qualification of Anchors	Composite Members I	Anchorage Experiments II	Special Loading II	Composite Members II
Commuting to Bowen Laboratory (15:30 - 16:00)			Coffee break (15:30 - 16:00)			Coffee break (15:30 - 16:00)		
Bowen Laboratory			Sessions (16:00 - 17:30)			Elizabeth Fowler Hall 		

August 3rd (11:20-12:30)

Session 1A (Room 202)

Anchorage Experiments I



Direct tension tests of headed stud anchorages with two parallel free edges

N. Anderson

Slotted holes in baseplates combined with anchor channels

C. Mahrenholtz

Experimental investigation on innovative concrete-based suction anchor for offshore construction

D. Suthar

Session 1B (Room 206)

Anchorage Design

Performance-based design concept for fastenings in steel fiber reinforced concrete against concrete related failure modes

N. Vita

Recommended design provisions for anchors with stand-off connections in ACI 318

K. McBride

Design of anchorages with flexible baseplates

A. Sharma

Session 1C (Room 214-AB)

Composite Walls I

Wind and seismic behavior of bolted splice connections for speedcore

S. Sharma

Performance of steel-plate composite (SC) walls with diaphragm plates subjected to projectile impact

O. Saleem

Design of a novel bolted connection for coupled speedcore (CC-PSW/CF)

K. Kondos

August 3rd (14:00-15:30)

Session 2A (Room 202)

Adhesive Anchors and Post-Installed Bars I

Combined pullout and concrete failure of bonded anchors under tension:
experimental and numerical investigation

G. Chobe

Experimental study on post-installed-to-cast-in reinforcing bar splices using large-scale
beam tests

D. Waghmare

Extension of adhesive anchor bond capacities for embedments beyond 20d

K. McBride

Diamond sponsor presentation

Session 2B (Room 206)

Special Materials I

Anchorage in high performance concrete

J. Pearson

Assessment of the normalization exponent m for bond failure of bonded anchors in
recycled aggregate concrete

Z. Mikulic

Performance of headed anchors in ambient cured fly-ash and slag geopolymer concrete

J. Lee

Bond-splitting behavior of post-installed adhesive glass-fiber reinforced polymer
(GFRP) bars

D. Suthar

Session 2C (Room 214-AB)

Composite Bridges and Slabs

Using larger diameter shear studs for composite steel bridges

T. Helwig

Finite element modeling of shear stud behavior in composite steel bridges following full-depth
girder fracture

C. Korkmaz

A pathway to optimize structural performance and environmental footprint of floor systems
with composite slabs through smart connections design

L. Corti

Thermal response of steel bridges subjected to hydrocarbon fire and subsequent air and
water cooling

S. Sharma



August 4th (11:00-12:30)

Session 3A (Room 202)

Numerical Modeling of Anchorages I

Spring modeling approach for the fully fastened haunch retrofit solution in beam-column joints

M. Tonidis

Mesoscale modelling of headed studs in tension and shear embedded in concrete

Y. Wang

Shear strengthening of reinforced concrete beams with post-installed reinforcements: numerical investigation

E. Oyakojo

Effect of head size, bearing area and embedment depth on the tensile capacity of cast-in headed fasteners

T. Pokharel

Session 3B (Room 206)

Anchorage with Reinforcement

Analytical model for anchorages strengthened with post-installed supplementary reinforcement against concrete related failure modes

N. Vita

Design model for anchorages with anchor reinforcement under bending moment

D. Suthar

Anchorages with hooked and headed bars as anchor reinforcement under tension

J. Shrivastava

Vision-based crack and spalling detection in reinforced concrete structures

A. Mallepalli

Session 3C (Room 214-AB)

Composite Walls II

Experimental tests on single-sided fillet weld lap splice connections

J. Harmon

Seismic design parameters for uncoupled C-PSW/CF systems with non-contact lap splice connections

D. Chen

Layered composite shell modeling of non-contact lap splice connections in C-PSW/CF systems with different concrete damage models

M. Mishra

Experimental and numerical behavior of the bolted CC-PSW/CF (SpeedBox) connection

K. Kondos



August 4th (14:00-15:30)

Session 4A (Room 202)

Adhesive Anchors and Post-Installed bars II

Improved formulation for characteristic spacing of adhesive anchors in combined pullout and concrete failure

P. Malladi

A rational method for consideration of the factor α -setup for the design of bonded anchors

A. Sharma

Experimental study of RC bridges labs widened using post-installed reinforcing bars

D. Waghmare

Diamond sponsor presentation

Session 4B (Room 206)

Qualification of Anchors

Comparison of US and EU post-installed concrete anchor requirements - general overview

P. Schillinger, H. Silverman

Comparison of US and EU post-installed concrete anchor requirements - qualification US

P. Schillinger, H. Silverman

Comparison of US and EU post-installed concrete anchor requirements: qualification EU

P. Schillinger, H. Silverman

Comparison of US and EU post-installed concrete anchor requirements: quality control and design

P. Schillinger, H. Silverman

Session 4C (Room 214-AB)

Composite Members I

Structural performance of an RC-steel joint mechanism for removable secondary beams

Y. Ishida

The effect of column base fixity on the compressive strength of axially loaded steel columns

A. Jhunjhunwala

Steel-concrete composite bridge pier-to-foundation connections: embedded and noncontact lap-splice connections

S. Shafaei

Axial and eccentric compressive behavior of stiffened cruciform steel-concrete composite columns

M. Hassam



August 4th (16:00-17:30)

Session 5A (Room 202)

Artificial Intelligence and Design Software

Software for nonlinear analysis and design of anchor groups

A. Sharma

Predictive models for pull-out strength of rebar embedded in concrete

Y. Mehta

Software for the design of reinforced concrete panels

C. Sierra

Use of artificial intelligence in anchoring technology – current and future trends

L. Fernandez

Session 5B (Room 206)

Special Materials II

Behaviour of post-installed fasteners in steel fibre-reinforced concrete under monotonic and crack cycling load protocol in cracked conditions

P. Rajbhandari

Tensile performance of cast-in-place anchors in UHPC

O. Souri

Mechanical screw anchor performance in 3D-printed concrete walls

C. Popescu

Shear behavior of adhesive anchors installed in UHPC panels

P. Kar

Session 5C (Room 214-AB)

Special Loading I

Experimental investigation of residual bond strength in modified beam-end specimen after thermal cycling

F. Rehman

Seismic C2 qualification of anchors: first decade and beyond

P. Mahrenholtz

Fire performance fasteners in low-carbon concrete

T. Pokharel

Fatigue resistance of concrete anchors in case of steel failure

T. Frohlich



August 5th (11:00-12:30)

Session 6A (Room 202)

Numerical Modeling of Anchorages II

Finite element modeling of post-installed anchors in cracked concrete as an alternative for seismic qualification tests

T. Wood

Enhanced capacity of anchor groups subjected to biaxial bending moments

A. Rawat

Nonlinear finite element analysis of exterior reinforced concrete beam-column joint with headed bars susceptible to breakout failure

P. Kosaraju

Hysteretic characteristics of post-installed anchors determinable from displacement-controlled pulsating tension load tests

E. Stehle

Session 6B (Room 206)

Applications of Anchorages in Strengthening

Comparison of code predictions of punching shear retrofit solutions

J. Chapin

Numerical investigation of shear strengthening of flat slabs with post installed reinforcement

E. Oyakojo

Retrofit ties in masonry and veneer walls

A. Lamanna

Screw anchor rebar system for retrofitting of concrete structures

C. Hsieh

Session 6C (Room 214-AB)

Composite Walls III

Two-way bending tests on steel-plate composite panels

J. Harmon

Design and performance of uncoupled C-PSW/CF systems with non-contact lap splice and bolted splice connections in low-to-moderate seismic regions

D. Chen

Use of overlapping shear studs as tie reinforcement in SC construction

L. Parson

Numerical modeling of a coupled composite plate shear wall-concrete filled (C-PSW/CF) to steel coupling beam (SpeedBox) connection

M. Mishra



August 5th (14:00-15:30)

Session 7A (Room 202)

Anchorage Experiments II

“The top plate effect” in headed stud anchorages – a pilot study

N. Anderson

Novel crack control method for metal injection anchors into masonry under varying crack width

D. Gurkut

Influence of nearby edge on the concrete cone capacity of anchorages subjected to bending moment

G. Chobe

A stability-driven real-time hybrid simulation framework for hysteretic structural components

M. Gomaa

Session 7B (Room 206)

Special Loading II

Experimental study on the bond degradation in the critical lap-spliced regions of one-way slab after exposure to elevated temperatures

F. Rehman

Unique anchor channel that allows connections with channel bolts to be subjected to seismic and fatigue loads in both tension and shear

C. Mahrenholtz

Behavior of post-installed reinforced concrete bridge railings subjected to varying displacement rates

P. Malladi

Numerical investigation on bond-splitting behavior of post-installed reinforcing bars under fire

N. Reid

Session 7C (Room 214-AB)

Composite Members II

Design methodology for non-contact lap splices connecting reinforced concrete to steel-plate composite structures

J. Lynch

Experimental investigation of a precast plug-to-pipe pile connection under seismic loading

N. Villamizar

Experimental performance of steel-plate composite-to-reinforced concrete embedded connections

A. Kakirde

Bond performance and strength degradation of FRP-retrofitted RC columns under lateral loading

E. Patino

