

APRIL 13, 2022

The logo for the Concrete Bridge Engineering Institute (cbei), featuring the lowercase letters "cbei" in a bold, sans-serif font. The "c" and "b" are blue, and the "e" and "i" are red. A blue swoosh with a red star at its end arches over the letters.

**CONCRETE BRIDGE
ENGINEERING INSTITUTE**

2022 CTR Symposium

OGUZHAN “OZZIE” BAYRAK

Professor, The University of Texas at Austin

GREGORY HUNSICKER

Research Engineer, The University of Texas at Austin



**CONCRETE
BRIDGE
ENGINEERING
INSTITUTE**

Vision: Better Built, Longer Lasting.
Facilitating excellence in our concrete
bridge workforce and technology.

Mission: *Serve the concrete bridge community as the leading resource on the most pressing issues encountered in concrete bridges across the nation. This is accomplished through facilitating interdisciplinary collaboration and partnerships, conducting research which melds engineering practices, and developing unique educational and training opportunities for preparing the current and future generations of our concrete bridge workforce. It also serves to facilitate introduction of new technologies successfully into practice.*





Cockrell School of Engineering
 The University of Texas at Austin
 Cockrell School of Engineering


Ferguson Structural Engineering Laboratory
 Oguzhan Bayrak,
 Anca Ferche, Matt Hebdon

Laboratory for Infrastructure Materials Engineering
 Kevin Folliard,
 Thano Drimalas

Smart Structures Research Group
 Salvatore Salamone

Mechanics, Uncertainty, and Simulation in Engineering
 Loukas Kallivokas

CBEI Staff
 Michelle Damvar - Program Coordinator
 Dennis Fillip – Technical Staff Associate
 Dustin Miller - Technical Staff
 Hunter Cohen - Technical Staff
 Zach Webb - Research Associate
 Gregory Hunsicker - Research Associate
 Jarrod Zaborac - Postdoctoral Researcher
 Dennis Wang - Postdoctoral Researcher
 Yongjae Yu - Postdoctoral Researcher

Concrete Bridge Engineering Institute
 Oguzhan Bayrak, Director

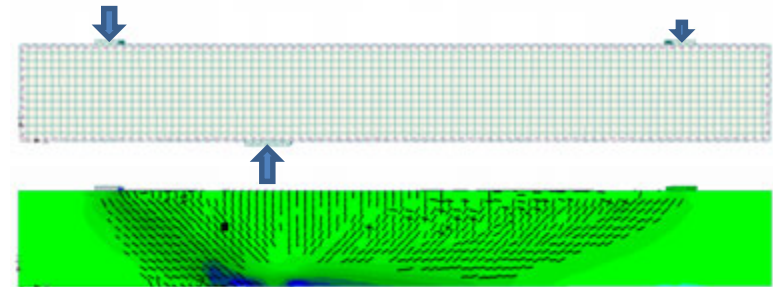
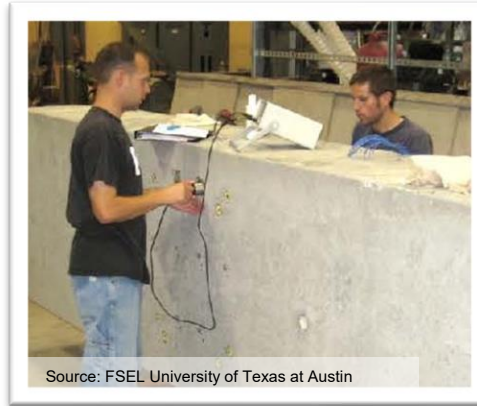
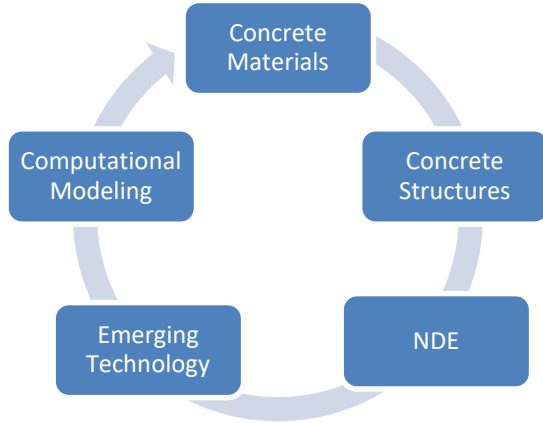
Subject Matter Experts
 NDE: Performance and Health
 Structural Behavior
 Analysis and Design
 Concrete Materials Science
 Post-Tensioning
 Segmental Construction
 Construction Inspection
 Bridge Deck Construction

Bridge Deck Construction Inspection Training

Concrete Material Durability Program for Bridges

Post-tensioning Academy

Interdisciplinary Approach



Source: FSEL University of Texas at Austin



1
Post-tensioning
Laboratory / Academy



2
Bridge Deck
Construction Inspection



3
Concrete Materials for
Bridges

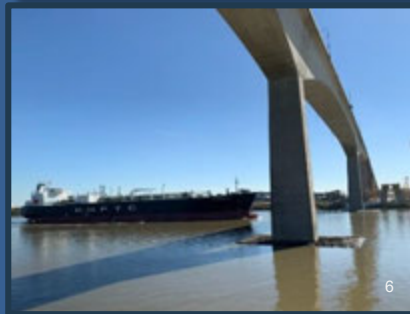


4
Future Topics and
Needs



Training and Certification

- Hands-on Training
- Recreate / Mock-up Problems
- Workforce Development
- Certification Programs



Concrete Solutions Center

- Research and Development
- Testing New Technologies
- Webinars and In-House Workshops
- Technical Support
- Documents and FAQ's



Concrete Bridge Component Library

- Training and Demonstrations
- Illustrate problems, solutions, NDE
- Contains actual bridge components
- Samples from research projects

Post-tensioning Academy



PT Laboratory/Academy

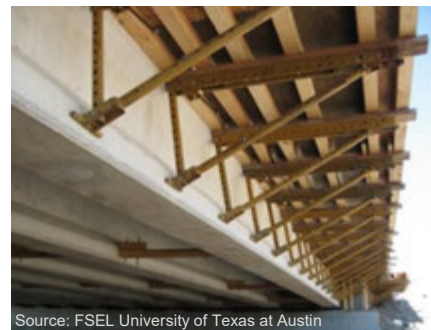


Training



Technologies

Bridge Deck Construction Inspection



Bridge Deck Construction Inspection Program



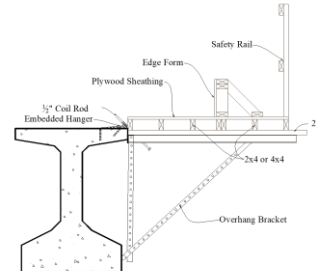
Training



Research

Bridge Deck Construction Inspection

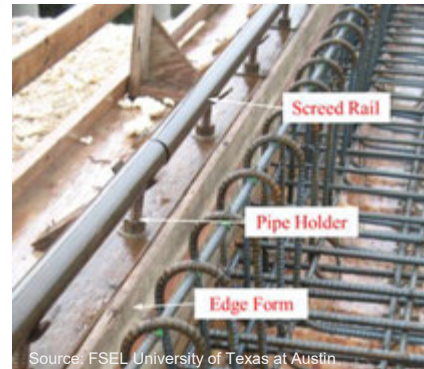
- Proven details
- Innovative practices
- Illustrate:
 - Past issues
 - Potential pitfalls
 - Built-in problems
- Research
- Identified alternates
 - Deck Types
 - Details



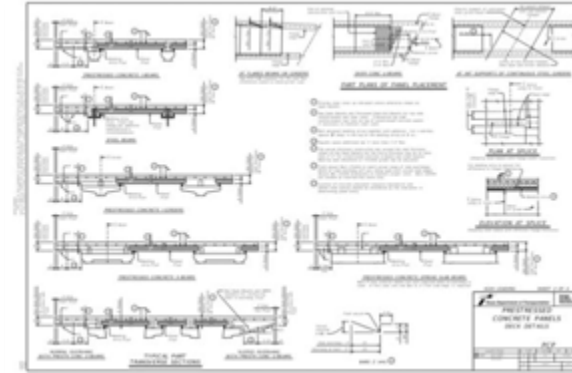
Source: FSEL University of Texas at Austin



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Source: FSEL University of Texas at Austin



Source: TxDOT (<https://ftp.dot.state.tx.us/pub/txdot-info/cmd/cserve/standard/bridge/pcpstde1-19.pdf>)

Concrete Materials



Concrete Materials for Bridges Program



Training



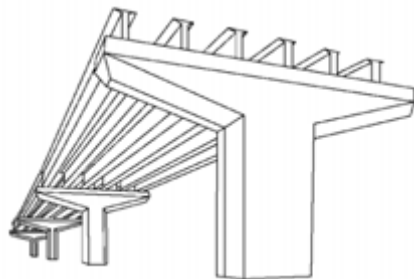
Research

Concrete Materials



- Corrosion
- Alkali Silica Reaction (ASR)
- DEF
- Crack Evaluation
- Post-tension Grout Evaluation
- Mass Concrete
- Other topics

Future Needs and Topics



Future Topics



Training



Research



Technology

Site Update

Bridge Component Library



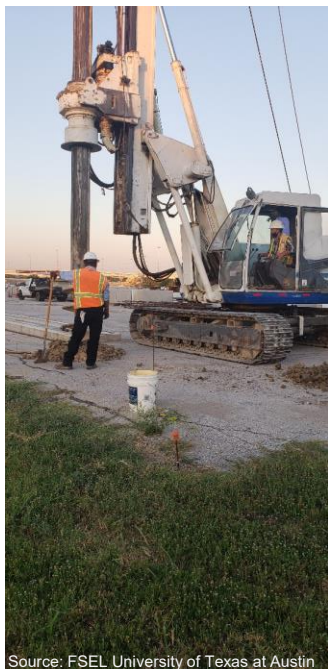
Source: FSEL University of Texas at Austin

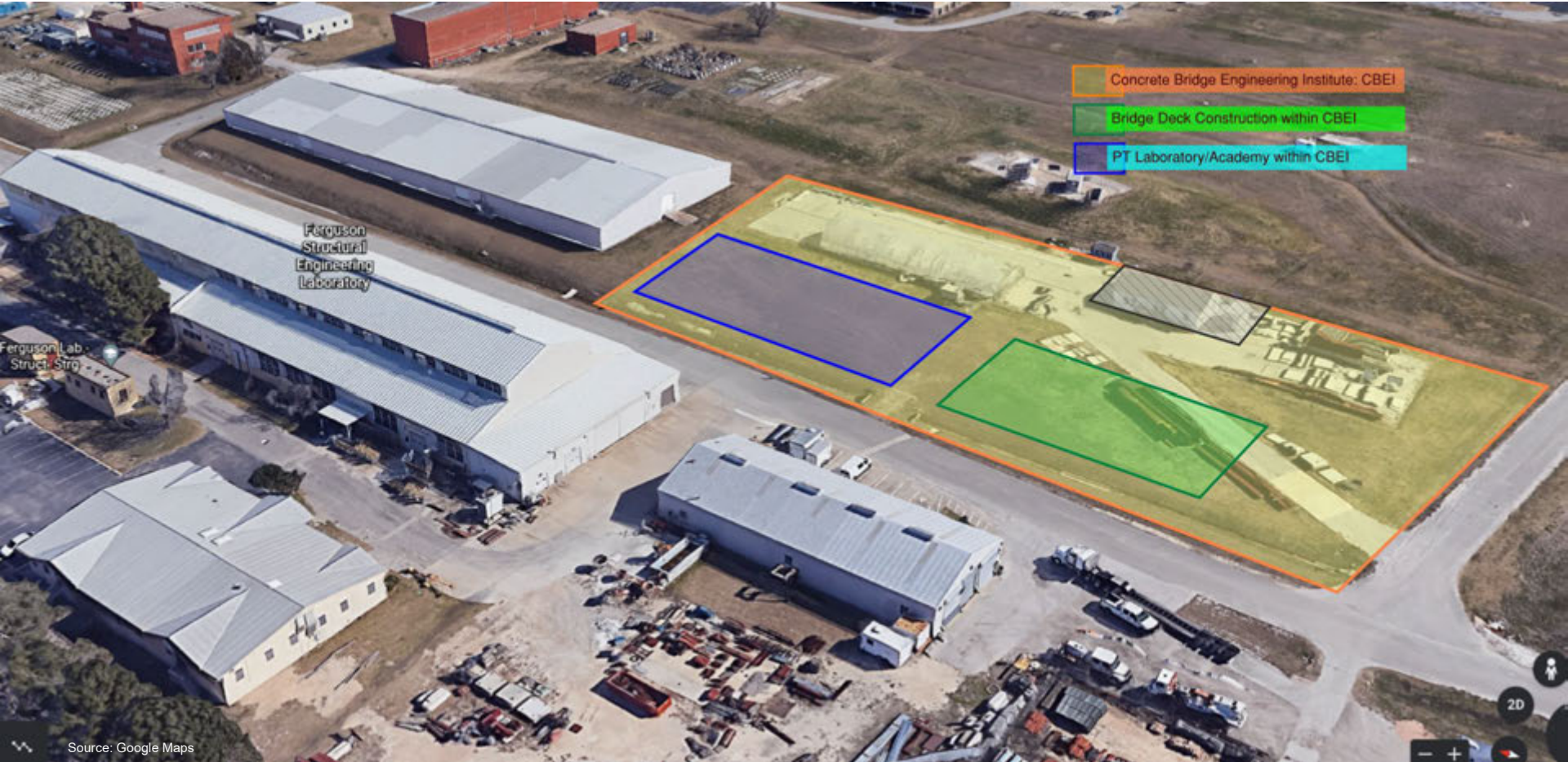


Source: FSEL University of Texas at Austin

Site Update

Foundation and Slab Construction







**CONCRETE
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Thank You!

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