

# 2025 PROCEEDINGS

# MAY 5, 2025 Sheraton Phoenix Downtown | Phoenix, AZ, USA

For more information, visit www.post-tensioning.org.



# **Table of Contents**

#### 2025 Technical Sessions

Links to the technical session presentations are available from the following pages. Navigate to the session of interest and select "presentation" to view. Please note that not all sessions were approved for publication.

Technical Session 1: PT Bridges & Multistrand PT	3
Technical Session 2: Engineering Ethics	6
Technical Session 3: PT Repair and Strengthening	7
Technical Session 4: PT Buildings	9
Welcome Packet	11
Award Booklet	11
PDH Tracker Form	11
PTI 2025 Convention Sponsors	12



# **Technical Session 1: PT Bridges & Multistrand PT**

#### Moderator: Nick Amico

#### **Specialized Bridge Post Tensioning Assessments**

#### Travis Green & Brian Merrill

Bridges play a critical role in our transportation infrastructure. Part 1 introduces specialized assessment techniques for post-tensioned bridges including visual inspection, nondestructive testing (NDT), corrosion testing, inspection openings and materials testing. Also included is a discussion about sampling methods for inspection openings, the repair decision-making process and common rehabilitation methods including remedial grouting. Part 2 presents a case study on the assessment of fire damage at a posttensioned bridge, including inspection and testing activities, laboratory testing and conclusions.

#### Video | Presentation

#### Tendon Impregnation and Strengthening of a Post-Tensioned Segmental Bridge

#### Nick Amico & Jason Furl

Since the discovery of a ruptured 1,010-foot external post-tensioning tendon in 2016, the I-526 Wando River Bridge has undergone extensive rehabilitation and durability upgrades. A 2021 PTI presentation highlighted the initial evaluation and repair efforts, including a comprehensive external tendon assessment program, four tendon replacements and installation of new supplemental tendons and the implementation of an expandable supplemental PT system. This presentation will focus on the design strategies and innovative construction techniques used for the latest durability enhancements and structural strengthening activities.

#### Video | Presentation



# Technical Session 1: PT Bridges & Multistrand PT (Cont.)

#### Moderator: Nick Amico

#### **Durability and Best Practices for Post-Tensioning Pour-backs**

#### Natassia Brenkus & Anthony Addai Boateng

Protection of the post-tensioning tendon and anchorage is critical to the durability of the overall structure. Construction practices play a large role in their protection. The interface formed between the primary concrete element and secondary pours is constructed on site with limited guidance. Durability may be compromised if the interface between pours is insufficiently prepared, and these regions may be a source of contaminant intrusion. This research evaluates pour-back materials and various surface preparations, seeking to characterize interface integrity. Surface preparation techniques were found to influence bond and porosity of cementitious grout-concrete interfaces but not epoxy grout interfaces. Abrasive surface preparation increased bond strength up to 50%. Implications for the design and maintenance of PT structures, highlighting the importance of surface preparation and grout material selection, will be discussed.

#### Video | Presentation



# Technical Session 1: PT Bridges & Multistrand PT (Cont.)

#### Moderator: Nick Amico

# PTI PT Systems Qualification & Testing Certification, Panel Discussion with State DOTs

#### Tim Christle and State DOT Representatives

This presentation provides an overview of the new CRT-70 PTI certification program focused on qualifying, testing, and certifying Multistrand and Bar Post-Tensioning Systems (PTS). The certification program is based on the PTI/ ASBI M50.3 specification, a standard already supported by numerous state DOTs, FHWA, and AASHTO. An update on the current status of the program is summarized, and a group of DOT/Owner representatives from California, Florida, Texas, and Washington are engaged in a diverse panel discussion regarding their perspectives on a centralized program of this type, how they have been qualifying PT systems for projects in their state jurisdiction, and what they would like to see from the PTI program as a whole. Presenting the perspectives of DOT/Owner stakeholders is key to operating the program effectively and informing PT supplier and system submittal auditor participants of these critical viewpoints.

#### **Recording and Presentation — Available Soon!**



# **Technical Session 2: Engineering Ethics**

#### Moderator: Tony Childress

#### Ethics – Just Like Concrete, Various Shades of Grey

#### Bill Rushing

Ethics is usually not an easy decision. Rarely are we faced with an ethical question that is clearly black or white; right or wrong. It is rarely a clear decision, and there are some shades of grey. Determining the correct path may include many variables that cause us to pause and consider what the right decision may be. This session will discuss some ethical scenarios that illustrate this point and provide some insights into what the correct approach could be and the various factors that influence the decision-making process.

**Presentation Not Released for Distribution** 



# **Technical Session 3: PT Repair and Strengthening**

#### Moderator: Tracy Naso

#### What's That Crack: Dealing with Unintended Consequences

#### Tracy Naso & Sarah Rush

Despite the industry's best efforts, post-tensioned structures still sometimes exhibit early-age distress. Excessive deflections and other undesirable structural behaviors can cause headaches for builders and for owners. In more extreme cases, wide cracking in slabs, walls and columns is alarming to engineers and the public alike. Investigations of a myriad of bad behaviors in post-tensioned structures have identified a recurring theme: unintended restraint of the post-tensioned elements. This presentation discusses some reasons that early-age restraint-related distress develops, provides considerations for engineers for how to investigate distress and determine its significance and urgency and explores some strategies for designing remediation methods.

**Presentation Not Released for Distribution** 



# **Technical Session 3: PT Repair and Strengthening (Cont.)**

Moderator: Tracy Naso

#### Adaptive Repurposing – Upcycling of an Existing Post-Tensioned Structure

#### Sivakumar Munuswamy

Many practicing engineers, developers, property owners, and property managers believe it is not possible to alter, add to, or remove parts—or even the whole—of existing structures with post-tensioned (PT) elements, such as PT slabs and beams. This belief applies particularly to situations involving rehabilitation or dynamic, adaptive repurposing of these structures, such as converting them from their original design purpose to a different use. Through a case-study of an ongoing adaptive repurposing structure project, this presentation bursts the myth about the adaptability of PT structural systems. It discusses the case study of an existing mixed-use multi-storied (36+ stories) residential PT structure in downtown Miami that is being repurposed as a hotel building by removing two intermittent PT floors to accommodate high ceiling lobbies, extending an additional PT slab area to introduce a rooftop pool, and cut openings in PT slabs across the entire structure to include shafts to accommodate new HVAC and MEP lines through the floor system.

#### Video | Presentation



# **Technical Session 4: PT Buildings**

#### Moderator: Jonathan Hirsch

#### The TSX Broadway Renovation and the Raising of the Palace Theater

#### Cawsie Jijina & J. Benjamin Alper

TSX Broadway in Times Square combines theater, hotel, retail and entertainment in one building. What sets it apart is its unique structural design, seamlessly blending old and new elements - most notably, its PT girder transfer system and the remarkable feat of lifting the historic Palace Theater. This presentation will discuss the innovative solutions that make this such an impressive project such as the 40 feet deep, 140 feet long concrete post-tensioned girders constructed to hang lower floors and support a new 32-story concrete flat-plate hotel tower above to the lifting of the Landmark Theater, 31 feet above street level with the support of a deep concrete ring beam. The girders, constructed in four lifts, followed a carefully coordinated post-tensioning sequence designed to minimize deflections, control stresses and reduce formwork. Below all of this, an additional cellar level was excavated as the tower progressed above. These are just some of the features of this unique project.

Video | Presentation



# **Technical Session 4: PT Buildings (Cont.)**

Moderator: Jonathan Hirsch

# Advancing with AI: Current Applications and Future Opportunities for the PT Industry

#### Jonathan Hirsch & Karl Gullerud

Artificial intelligence (AI) is here and will have a significant impact on how structures are designed, constructed, and operated. Some view AI as a workforce replacement, while others see it as an assistant that complements existing work roles. The goal of this presentation is to offer insight into how AI can be a force of positive change for the post-tensioning industry by automating workflows and unlocking productivity gains. The presentation includes a brief introduction to AI, including its capabilities and limitations, discusses current AEC industry use cases and explores potential applications for post-tensioning workflows.

Video | Presentation

#### The Art of Korean Post-Tensioning Practice

#### Thomas Kang & Chung-Jong Yi

This presentation focuses on the art of Korean post-tensioning practice. Case studies in this presentation will include PT outrigger walls with X-shaped diagonal tendons, linear and curved PT belt walls with horizontal (and vertical) tendons, 47 in.-thick PT slabs for radiation shielding, PT girders with live ends at the top, PT dapped beams, continuous PT stepped beams, 26 ft-long PT cantilevered slab and various PT transfer slab and girder types. Design, analysis and construction of the Korean case studies may be of great help to the US and other countries' practitioners.

Video | Presentation



## **Welcome Packet**



**Click Here to View** 

## **Award Booklet**



#### **Click Here to View**

# **PDH Tracker From**



**Click Here to View** 



## Thank You to Our 2025 PTI Convention Sponsors







# Jacks & Accessories, Inc















Major Sponsor Major Sponsor Major Sponsor

Monday

Tuesday

Monday

Tuesday

Welcome Reception Awards Reception Research Mixer Welcome Reception Awards Reception Lanyard Sponsor Notepad Sponsor Folder Sponsor Coffee Break Sponsor Coffee Break Sponsor Lunch Break Sponsor

#### AOE

Post Tech Manufacturing Martin Specialty Products PTE Sumiden Wire Texas Strengthening Technologies JSW Stud Rails PS=0 Martin Specialty Products Jacks & Accessories, Inc Insteel Wire Products AOCUSA

## Have Post-Tensioning Questions? We Have Reinforced Answers.

PTI has engineering staff available to assist you with any post-tensioning related technical questions you might have about a document or a project.

If you have a technical question, issue, or challenge to be met with posttensioning, our team can provide assistance and answer. Contact us via e-mail at *technical.inquiries@post-tensioning.org*.

THE POST-TENSIONING INSTITUTE Your resource to the post-tensioning industry.

#### **PTI Professionals & Office**

PTI Farmington Hills Office +1.248.848.3180 info@post-tensioning.org

**Executive Vice President** Tim Christle, P.E. tim.christle@post-tensioning.org

Director of Association Management Services, AOE Bryce Barker bryce.barker@aoeteam.com

Engineer Brandon Harman, P.E., S.E. brandon.harman@post-tensioning.org

Certification Director Nick Vejvoda nick.vejvoda@post-tensioning.org

Marketing Manager Paulina Barbone paulina.barbone@post-tensioning.org

Certification Coordinator Kimberly Curtis kimberley.curtis@post-tensioning.org **Certification Coordinator** Matt Fill matt.fill@post-tensioning.org

Membership Coordinator Michelle Stern michelle.stern@post-tensioning.org

Publications Coordinator Emily Emanuelsen emily.emanuelsen@post-tensioning.org

Executive Assistant Tram Hickey tram.hickey@post-tensioning.org

Lead Accountant Stacey Clement stacey.clement@concrete.org

Event Planner Courtney Clemens courtney.clemens@post-tensioning.org

Graphic Designer Susan Esper susan.esper@concrete.org

