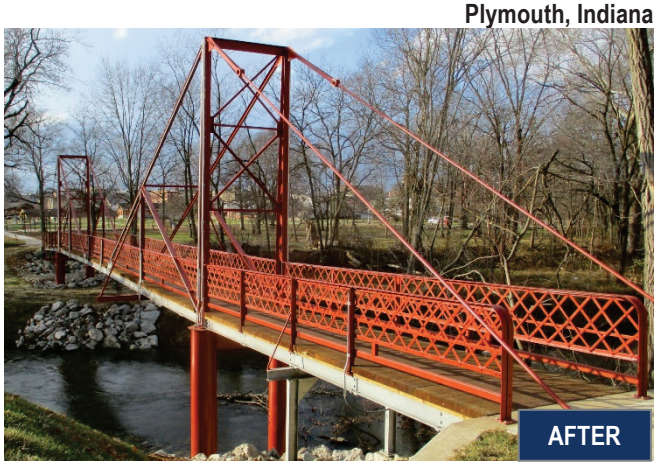
RELEVANT PROJECT PROFILES

KURDZIEL BARKER
BRIDGE ENGINEERING

RICE ISLAND BRIDGE TRUSS RELOCATION (HARRISON 65) **Corydon, Indiana**

The Rice Island Park bridge that connects downtown Corydon to a recreation park and nature themed playspace was once an abandoned and bypassed bridge in Harrison County. Daniel Kurdziel was the Engineer of Record on this bridge project.

LAPORTE STREET BRIDGE TRUSS REHABILITATION **Plymouth, Indiana**



The LaPorte Street bridge is a unique structure to Indiana. It functions as a cable stayed bridge, using Kingpost Trusses as the intermediate piers. The center of the bridge is comprised of a suspended span. Jim and Daniel were the Engineers of Record on this bridge and prior to the rehabilitation, the bridge would move by over a foot sidways as someone would walk across it. It now has no noticible deflections.

HOLLIDAY ROAD BRIDGE RECONSTRUCTION (BOONE 207) **Boone County, Indiana**

A tractor with an attached implement attempted to drive through the Pratt Truss bridge and collapsed the bridge with the tractor inside. The tractor was pulled from the bridge, which was disassembled and reconstructed using 70% of its original material.

RELEVANT PROJECT PROFILES

KURDZIEL BARKER
BRIDGE ENGINEERING

PAOLI BRIDGE RECONSTRUCTION (ORANGE 200)

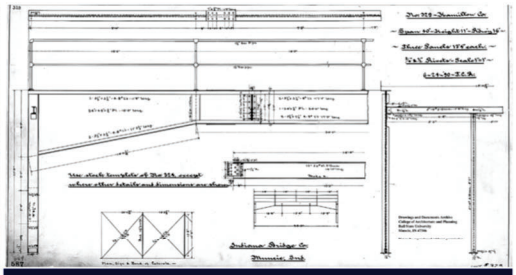
Paoli, Indiana

The Paoli Bridge is located adjacent to the City Square and was a prominent feature of the town. An oversized truck attempted to drive through the bridge, and the bridge collapsed with the truck inside. The bridge was disassembled and reconstructed using mostly original material.

STRAWTOWN KOTEEWI PARK BRIDGE RELOCATIONS & RECONSTRUCTION

Hamilton County, Indiana

Washington County Bridge 113 - Before



Hamilton County Bridge 21 Original 1890 Plans

Wayne County Bridge 229 - Before

Completed Bridge

Jim Barker was the lead design engineer for this historic bridge project. The project entailed the repurposing and redesign of three existing county bridges – all over a century old: Washington County Bridge 113, Hamilton County Bridge 21, and Wayne County Bridge 229. The original Washington and Wayne County bridges were reclaimed and utilized in the new design, but since the Hamilton County bridge had long since been demolished, it was reconstructed using the original plans from 1980. These three historic bridges are now connected together to create one new bridge, approximately 285 feet long. The new bridge spans over the White River at Strawtown-Koteewi Park and White River Campground.

KURDZIEL BARKER
BRIDGE ENGINEERING

FREEDOM BRIDGE RELOCATION PROJECT

PENNSYLVANIA TRUSS – 300' LONG

Freedom Bridge at Original Location

Bridge Being Moved Off River

Bridge Pieces Once Disassembled

The City of Delphi had big plans to connect one of their trail systems to Delphi; however, this would require a crossing over US 25, a four-lane divided highway. After thorough planning, it was decided that the best way to cross the highway would be to cross it with a single span. The only bridge near the area that could span the highway was the bridge in Freedom, Indiana. Jim Barker was the lead Bridge Engineer for this project.

The bridge was originally built in 1897 as a pin-connected Pennsylvania Truss bridge. After over 100 years of service, it was bypassed. This 300' long bridge remained there for many years before this project started.

Once Jim designed the structure and ensured that all the necessary repairs were made to make the structure safe for the public, the project moved into construction. The bridge was first removed from its original location and moved off to one side using the adjacent concrete bridge. Once on the adjacent bridge, it was rolled off to an adjacent field for disassembly.

The disassembly required experienced and talented contractors known to do this work. The bridge disassembly and repair work was done by Camden Construction, out of Pierceton, Indiana. The bridge was disassembled, one piece at a time, starting at one end of the bridge towards the center.

Once the bridge was disassembled, it was transported to the repair shops so that the designed repairs could be performed along with general restoration of the remainder of the truss pieces. The pieces were then primed with paint and were ready for reassembly.

Bridge Being Disassembled

FREEDOM BRIDGE RELOCATION PROJECT

PENNSYLVANIA TRUSS – 300' LONG

A staging area was created near the proposed bridge's location where it could be methodically reassembled. Once most of the bridge was assembled, a crane pad was built on US25 to ensure that the roadway would not be damaged during moving of the truss. The bridge was picked up and shifted to its final location and set down.

Then the crane pad was removed, and the bridge deck could be installed. Once all the steel pieces were in place, the bridge received a fresh coat of blue paint, and it now serves as one of the most prominent crossings on all of US 25. The bridge also serves as a striking appearance for traffic goers turning the bend on US 25 and creates an equally exciting experience for pedestrians walking through the bridge!

Bridge After Priming Coat was Applied & Reassembled

New Bridge Deck Being Installed

Bridge Being Moved onto New Abutments

The Delphi Freedom Bridge as it Stands Today

JIM BARKER, PE

HISTORICAL BRIDGE SPECIALIST

Jim has designed numerous bridge repair and rehabilitation projects and has developed special expertise in the repair and reconstruction of our historic covered bridges and iron trusses and designed major rehabilitation projects for over 20 historic bridges. Since 1998, he has also designed over 30 bridge replacements on public roadways, including several on state and US highways. Jim's responsibilities have included developing project concepts, bridge sizing and hydraulic design, cost estimates, value engineering, structural design, and construction inspection. He has designed repairs to numerous culverts, residences, and commercial buildings.

Jim has been the project engineer on more than 100 bridge repair or replacement projects. In this capacity he was responsible for the preliminary scope and design, hydraulic calculations, environmental studies, structural design, cost estimates, and construction inspection for the projects. About half of the projects involved federal aid funding. Other areas of his work include road design, bridge inspection, and the structural design of commercial buildings.

EXPERIENCE
40+ Years

EDUCATION
B.S. *Civil Engineering* – Purdue University

M.S. *Civil Engineering*, University of Colorado

REGISTRATIONS
PE – IN, KY, NH

AFFILIATIONS
Indiana Covered Bridge Society—Life Member

National Society for the Preservation of Covered Bridges—Past Recording Secretary, Board of Directors

PUBLICATIONS
The Engineering Design of Covered Bridges—in Covered Bridges and the Birth of American Engineering, 2015

HISTORICAL BRIDGE EXPERIENCE

- Strawtown Koteewi Historic Pedestrian Bridge, 285' rehabilitation/restoration of 3 separate historical bridges into one span, 2018 ACEC Merit Award Winner – Hamilton County
- Cedar Chapel Bridge relocation & restoration, including historical research – Hamilton County
- Duck Creek Aqueduct structural repairs – Whitewater Canal State Historic Site (IDNR) in Metamora
- Enochsburg Bridge structural overhaul to increase load limit – Franklin County
- Freedom Bridge adaptive reuse of 300' Pennsylvania Truss removal and reconstruction – White River and Delphi
- Furnas Mill Bridge, 250' Pratt truss bridge rehabilitation, Historic Landmarks Award-Winner – Johnson County
- Gospel Street Historic Truss Bridge Rehabilitation – Orange County
- Adams Mill Bridge restoration (Federally funded) – Carroll County
- Cataract Falls Bridge emergency repairs – Lieber State Park in Owen County
- County Bridge #114, 100' 1897 Pratt Truss rehabilitation, Partnership for Highway Quality Achievement Award-Winner (FHWA & INDOT) – Monroe County
- County Bridge #120 (Wilson Bridge) over Deer Creek, 135', 1897 Pratt Truss rehabilitation – Carroll County
- County Bridge #133 over Driftwood River, two-span, 260' truss rehabilitation and load limit increase after being closed to traffic for a decade – Bartholomew County
- County Bridge #146, 96' 1893 Pratt Truss rehabilitation and load limit increase – Morgan County
- County Bridge #15 relocation and rehabilitation – Pulaski and Hendricks Counties

MILROY BRIDGE LAKE COUNTY FAIRGROUNDS, LAKE COUNTY, IN: 100' Burr Arch built 1878. This bridge was relocated from Rush County to Lake County in 1933. This bridge's arch ends had failed due to carpenter ant damage, causing failure in the lower chords. The lower lateral bracing was insufficient and the roof and decking was deteriorated. The bridge load limit is now posted at 9 tons, allowing the local trolley and vehicles to cross the bridge.

Jim Barker, P.E.

STRUCTURAL ENGINEER

40+ Years Experience

Purdue University
B.S. Civil Engineering – Structural

Colorado University
M.S. Civil Engineering - Structural

Professional Engineering License
- Indiana

Professional Affiliations
- Indiana Covered Bridge Society, Lifetime Member

Personal Biography

Jim started his career in a very different field than he is now. Upon graduating from Colorado University, Jim took a job with the Martin Marietta Corporation working on designing payloads for rockets. He was instrumental in successfully getting cutting edge satellites into space. Jim eventually decided that was not his path, and switched back to traditional civil engineering. He took a position with AECON Group and worked in their bridge department, gaining knowledge and obtaining his professional engineering license. After 18 years, Jim decided to start his own business as J.A. Barker Engineering, where he could focus on historic bridges. During this time, he physically acquired a half a dozen bridges that had fallen down or been taken down and stored them for decades. To his credit, every bridge he stored has now been rebuilt, with the last one being the one-of-a-kind Bell Ford Covered Bridge, now located in Hamilton County. After 10 successful years, Jim wanted to keep his focus on the engineering side of things, so J.A. Barker Engineering was acquired by VS Engineering, Inc. He spent 10 years working in the bridge department, where he met now partner, Daniel Kurdziel. Jim has given numerous presentations, co-authored and edited several books and became a lifetime member of the Historic Covered Bridge Society. After leaving VS Engineering, Jim started a business with Daniel where he continues to focus on the engineering of historic metal truss bridges and timber covered bridges. He is now the Vice President of Kurdziel Barker Engineering, Inc.

Professional Biography

With over 40 years practicing bridge engineering, Jim has seen it all. After spending 20 years working on highway bridges working with INDOT and Counties, the projects he's worked on range from single span county road bridges to 8-span highway bridges over major waterways. After transitioning into historic bridges, Jim has worked on over 100 historic bridges, including several dozen complete rehabilitations, relocations and reconstruction projects. Jim is commonly recognized as one of the foremost experts in timber covered bridges in the United States and has worked with the National Parks Service out of Washington D.C. on several research projects and authoring or editing books regarding the engineering of timber covered bridges. Jim has physically saved and stored about a half a dozen bridges, all of which have now been reconstructed. Jim continues to work on historic bridges mentoring younger engineers and showing them the best practices of preserving historic bridges.

Broadcast Interviews
- 2017, News Broadcast, Springfield, MO, *Jefferson Ave. Footbridge Inspection*
- 2023, PBS Documentary, *Engineering Tragedy: The Ashtabula Bridge Train Disaster*

Publications
- *"Indiana's Iron Truss Bridges"*, Author, Outdoor Indiana Magazine, 1976
- *"Restoring Metal Truss Bridges to Serve Today's Needs",* Author, Historic Landmarks Foundation, 1998
- *"Protecting Indiana's Covered Bridges, One Person's Approach",* Author, 2003
- *"Restoration of a Covered Bridge over Troubled Waters… And Underneath Calm Ones",* Author, Structure Magazine, 2007
- *"Covered Bridges and Birth of American Engineering",* Co-Author, National Parks Service, 2015
- *"Guidelines for Rehabilitating Historic Covered Bridges",* Editor, National Parks Service, 2019

Presentations
- 2013, 2nd National Covered Bridge Conference, *Stretching the Envelope: How Bad Is "Repairable?"*
- 2017, Alternative Investment Management (AIM) Summit, *Historic Pedestrian Bridge Workshop*
- 2018, Great Lakes Park Training Institute, *Historic Pedestrian Bridges: Preserving Indiana's Past into the Future*
- 2019, Purdue County Bridge Conference, *Cedar Ford Historic Covered Bridge Construction*
- 2020, Purdue Road School, *Restoration & Rehabilitation of Historic Bridges*
- 2020, County Engineers Association of Ohio (CEAO) Bridge Conference, *Restoration & Rehabilitation of Historic Bridges*

Awards & Dedications
- 2014, ACEC Engineering Excellence, Honor Award, *Strawtown-Koteewi Pedestrian Multi-Historic Truss Bridge*
- 2019, ACEC Engineering Excellence, Merit Award, *Cedar Ford Covered Bridge Reconstruction*

DANIEL KURDZIEL, PE, MBA

PROJECT MANAGER

With 14 years managing and designing a broad range of complex projects for clients, Daniel understands what it takes to deliver high-quality, on-schedule, and cost-effective projects while exceeding your satisfaction. Daniel is a demonstrated industry-leading structural engineer with over a decade of experience. He is a multi-disciplinary design engineer in roadway, utility coordination, hydraulics and structures, with experience in every design-related aspect of a project. Daniel has served as project manager and chief structural designer, developing over **70 INDOT and LPA bridge projects.**

Communication must stand out, beginning at the top. Daniel is an expert at driving timely project input from partners and sub-consultants, acting on small issues before they become big problems, all in an effort to keep project design tasks on-track, working together. Furthermore, he knows how to provide innovative thinking to find the most cost-effective engineering solution for any given scope and budget by managing his project team to deliver on-time when expected.

EXPERIENCE

14 Years

EDUCATION

B.S. *Civil Engineering* – Purdue University

MBA *Operations Management* – Butler University

REGISTRATIONS

PE – IN, OH, WY, TN
NJ (pending)

CERTIFICATIONS

INDOT Certified Utility Coordinator

"Project design and project management was efficiently executed by VS Engineering. ***Dan Kurdziel took advantage of opportunities to build float in the schedule;*** *this made it possible to address Stage 3 design review comments and respond to the INDOT estimators and* ***meet the above average performance criteria*** *for schedule. Status reporting and communication was reliable throughout. The contract successfully let on 12-9-20."*

-INDOT La Porte District PM

HISTORICAL BRIDGE EXPERIENCE

- Holliday Rd. over Eagle Creek (Boone Co. Bridge 207) AKA O'Neal Bridge, Steel Pratt Through Truss Reconstruction (Collapse) – Boone County, IN
- Rice Island Park Trail over Little Indian Creek (Harrison Co. Bridge 65) AKA Circle Road Bridge, Steel Pratt Through Truss Relocation - Harrison County, IN
- Becks Mill Rd. over Mill Creek (Washington Co. Bridge 105) AKA Becks Mill Bridge, Two-Span Luten Concrete Arch Bridge Rehabilitation – Washington County, IN
- CR 100E over Wabash River (Warren Co. Bridge 36) AKA Shawnee Bridge, Steel Double Intersection Warren Through Truss Rehabilitation – Warren County, IN
- Farmersburg St. over Turman Creek (Vigo Co. Bridge 37) AKA Liston Bridge
- Concrete Arch Bridge Rehabilitation – Vigo County, IN
- Maple Grove Rd. over Beanblossom Creek (Monroe Co. Bridge 38) AKA Cedar Ford Covered Bridge, Timber Burr Arch Covered Bridge Reconstruction – Monroe County, IN
- Water Street over Prides Creek (Pike Co. Bridge 150) AKA Patoka River Bridge, Wrought Iron Bowstring Truss Relocation – Pike County, IN
- Lake County Fairgrounds Covered Bridge (Lake Co. Bridge 382) AKA Milroy Covered Bridge, Timber Burr Arch Covered Bridge Rehabilitation – Lake County, IN
- South Gospel St. over Lick Creek (Orange Co. Bridge 200) AKA Gospel Street Bridge, Steel Pratt Through Truss Reconstruction (Collapse) – Orange County, IN
- Whitewater Canal over Duck Creek AKA Metamora Aqueduct, Duck Creek Aqueduct, Timber Burr Arch Covered Aqueduct Rehabilitation – Franklin County, IN

RICE ISLAND PARK TRAIL OVER LITTLE INDIAN CREEK

Aerial View of Rice Island Bridge & Park

Rice Island was transformed into a recreation park & nature themed playspace connected by a relocated & restored Pratt Truss Bridge. VS coordinated with the contractors to ensure that they each had appropriate access to the island, and coordinated bridge construction staging with the park construction phasing. The bridge was staged and reconstructed where the playspace was planned. The first phase required the bridge abutments to be built first, followed by the park, while the bridge was being staged where the playspace would go. The park and bridge were constructed at the same time and then the bridge was moved onto its abutments to allow the playspace and downtown entrance to be constructed.

Daniel Kurdziel, P.E.

STRUCTURAL ENGINEER

15 Years Experience

Purdue University
B.S. Civil Engineering – Structural

Butler University
M.B.A. Operations Management

Professional Engineering License

- Indiana
- Tennessee
- Ohio
- Wyoming
- New Jersey (pending

Personal Biography

After graduating from Purdue University, Daniel spent his formative years designing INDOT highway bridges for RW Armstrong, (now CHA Consulting). During this time Daniel worked on new construction and bridge rehabilitation on major projects such as: US31 in Hamilton County, I-465 on the Northeast Corridor, US31 Bridges near South Bend and I-69 Construction. During his tenure there, he relocated to Azerbaijan, where he designed several major highway bridges connecting the capital city of Baku to the Russian border. After returning to the United States, he obtained his Professional Engineering License and began MBA coursework at Butler University. Upon graduation, Daniel took a leadership role for the Corradino Group, starting a new bridge department which, he grew to a staff of 3 and acquired several INDOT projects. He designed the Booneville Bypass project with Corradino, which included 6 miles of roadway, 3 roundabouts, 2 highway bridges, 1 railroad crossing and 22 small structures. Upon completion of this project, Daniel went on to lead the bridge department at VS Engineering, Inc. spending the subsequent 9 years building the team from 3 to 16 and specializing in historic bridge design with now partner, Jim Barker. Daniel has spoken at numerous conferences presenting on matters regarding historic bridges. Several of the historic bridge projects he's designed, have won awards and are places of great pride in their community. Daniel has most recently started his own engineering practice with partner and mentor Jim Barker. He is now the president of Kurdziel Barker Engineering, Inc.

Professional Biography

With 15 years of experience in the broader bridge design community and with the last 9 years specializing in historic bridges, Daniel has the breadth and depth of knowledge to accommodate any bridge project. He has worked on over 250 bridges throughout the course of his career, including the management/design of 172 bridge replacement or bridge rehabilitations, and 21 bridge preventative maintenance contractors with INDOT. Daniel now focuses primarily on historic metal truss bridges, timber covered bridges and stone/concrete arch bridges. Having prepared unique designs for over 50 of these types of structures, Daniel has been responsible for bridge relocations, full reconstructions, arson repair, impact and insect damage repair, and rehabilitations due to rot and decay. He is experienced in designing repairs to timber arches, upper and lower chords and fixing stone/concrete arches. Daniel prides himself of designing repairs that are historically appropriate and with minimal cost to the client.

Broadcast Interviews

- 2017, News Broadcast, Springfield, MO, *Jefferson Ave. Footbridge Inspection*
- 2023, PBS Documentary, *Engineering Tragedy: The Ashtabula Bridge Train Disaster*

Published Interviews

- 2020, Magazine Feature, Precast Solutions, *Specifier Q&A*
- 2021, Newspaper Article, Hamilton County Reporter, *Reconstruction Plans for Historic Bell Ford Covered Bridge Gaining Momentum*
- 2017, Newspaper Article, IndyStar, *Last of its Kind Covered Bridge Will Find New Home in Fishers*

Presentations

- 2017, Alternative Investment Management (AIM) Summit, *Historic Pedestrian Bridge Workshop*
- 2018, Great Lakes Park Training Institute, *Historic Pedestrian Bridges: Preserving Indiana's Past into the Future*
- 2018, Engineer's Week – Arsenal Tech High School, *Promoting Structural Engineering*
- 2019, Purdue County Bridge Conference, *Cedar Ford Historic Covered Bridge Construction*
- 2020, Purdue Road School, *Restoration & Rehabilitation of Historic Bridges*
- 2020, County Engineers Association of Ohio (CEAO) Bridge Conference, *Restoration & Rehabilitation of Historic Bridges*
- 2022, Purdue Road School, *Recouping Costs from Bridge Damage*
- 2022, Purdue Road School, *Fundamentals & Strategies of Moving Metal Truss Bridges*

Awards & Dedications

- 2012, ACEC Engineering Excellence, Merit Award, *Allisonville Road over I-465 Single Point Urban Interchange*
- 2019, ACEC Engineering Excellence, Merit Award, *Cedar Ford Covered Bridge Reconstruction*
- 2022, ACEC Engineering Excellence, State Finalist, *Rice Island Park & Historic Bridge Relocation*