**Bach Ornamental and Structural Steel Inc (Bach Steel)** is a company that is most well-known for their work in relocating and restoring historic metal truss and plate girder bridges, as well as hot riveting in both the shop and field. Related to this work is extensive experience in pneumatic pack rust removal, heat straightening, and welding of historic metals including pad welding for section loss. Bach Steel also brings a thorough understanding of the transportation industry and its expectations to the table, with extensive experience working with various state transportation departments and many different prime contractors. Bach Steel is a DOT preapproved company for riveting and other specialty historic bridge restoration work in states that have special qualifications for this type of work including Michigan, Indiana, Pennsylvania, and Ohio.

Bach Steel also does general structural steel fabrication and erection, hand-forged (wrought) iron/steel, ornamental art/furniture, stairs and rails, manufacturing, miscellaneous structural metal work, welding and repair. Bach Steel was founded by owner Nels Raynor who has over 30 years of iron/steel fabrication and erection experience.

**Bridge Projects and Other Historic Structures: Project Portfolio**

- **Project: Repairs to Historic US-23 Bascule Plate Girder Bridge, Cheboygan, Michigan**
  - Year the work was completed: 2016 (Ongoing Project)
  - Brief description of the work performed: Bach Steel completed shop riveting of replica sidewalk cantilever brackets. This to be followed by field riveting of the replica brackets in place onto the existing bridge girders. This project also involves field riveting on the approach spans, which is a particularly challenging aspect of this project due to the limited space for personnel and equipment in areas being repaired.
  - Name of the riveting supervisor(s) on the project: Nels Raynor and Derek Pung.
  - Bridge Owner: Michigan Department of Transportation.

- **Project: Repairs to Historic US-31 Bascule Plate Girder Bridge, Charlevoix, Michigan**
  - Year the work was completed: 2016 (Ongoing Project)
  - Brief description of the work performed: This project involves field riveting by Bach as part of a repair project to take place during the winter when the operable bascule bridge does not operate for boats. Bach is responsible for field removal of existing rivets and installation of new rivets as part of floorbeam repairs, and as part of a replacement of the machinery room enclosure.
  - Name of the riveting supervisor(s) on the project: Nels Raynor and Derek Pung.
  - Bridge Owner: Michigan Department of Transportation.
- **Project: M-86 Bridge Relocation and Restoration, St. Joseph and Cass Counties**
  - Year the work was completed: 2016 (Ongoing Project)
  - Brief description of the work performed: Bach Steel was responsible for the match-marking and non-destructive disassembly of this two lane rivet-connected pony truss bridge of heavy construction. Bach is then responsible for completing repairs (including hot riveting) to the existing steel members, followed by reassembly of the bridge at its new location on a county road in Cass County.
  - Name of the riveting supervisor(s) on the project: Nels Raynor and Derek Pung.
  - Bridge Owner: Michigan Department of Transportation and Cass County Road Commission.

- **Project: Relocation and Restoration of Historic Springfield Bridge, Conway, Arkansas**
  - Year the work was completed: 2016 (Ongoing Project)
  - Brief description of the work performed: This project included the removal of this abandoned (and leaning) 1870s iron bowstring bridge, which required removal of remaining timber deck, and installation of temporary bracing to prepare for its removal with cranes (cranes by others). This was followed by the nondestructive disassembly of the bridge (with match-marking of parts), and restoration of the bridge parts, including heat straightening. Bach Steel also fabricated simulation riveted caissons and installed these along with the load-bearing concrete substructure (also by Bach). This to be followed by reassembly and installation at the new park location. This project also involved fabrication and installation of replica riveted railing by Bach, as well as deck installation by Bach.
  - Name of the riveting supervisor(s) on the project: Nels Raynor and Derek Pung.
  - Bridge Owner: City of Conway, Arkansas

- **Project: M-14 Huron River Plate Girder Bridge Repairs, Ann Arbor, Michigan**
  - Year the work was completed: 2016
  - Brief description of the work performed: This project involved removal of pack rust and straightening of affected steel on this bridge which has fracture critical details and remained open to traffic during the pack rust removal process. Doing this work properly involves careful heating of the steel with close monitoring of the temperature of the steel throughout the heating process to insure the integrity of the steel is not compromised. Working with MDOT, Bach Steel developed a procedure to ensure this work could safely be performed with the bridge open to traffic.
  - Name of the supervisor(s) on the project: Derek Pung and Lee Pung.
  - Bridge Owner: Michigan Department of Transportation.
• **Project: Rehabilitation of Historic M-72 Ausable River Bridge, Grayling, Michigan**
  - Year the work was completed: 2016
  - Brief description of the work performed: Bach Steel completed shop riveting of replica sidewalk cantilever brackets. This was followed by field riveting of the replica brackets in place on the bridge. Repair of existing steel included removal and replacement of selected abutment rivets, as well as minor pack rust removal.
  - Name of the riveting supervisor(s) on the project: Nels Raynor and Derek Pung.
  - Bridge Owner: Michigan Department of Transportation

• **Project: Restoration of the St. Joseph Lights, St. Joseph, Michigan**
  - Year the work was completed: 2015
  - Brief description of the work performed: Pack rust removal and replication of partial sections of elevated catwalk for St. Joseph Lighthouses. Hot riveting used throughout project both in the shop and in the field. Replication of riveted steel doors for lighthouses. Miscellaneous repair and replication work for lighthouses.
  - Name of the riveting supervisor(s) on the project: Nels Raynor (shop) and Derek Pung (field).
  - Bridge Owner: City of St. Joseph, Michigan

• **Project: SR-1029 Over Tunkhannock Creek Bridge Restoration and Relocation, Wyoming County, Pennsylvania**
  - Year the work was completed: 2015 (Ongoing Project)
  - Brief description of the work performed: Full in-kind repair and restoration of this historic metal truss bridge for continued vehicular use. Steel work: Bach Steel was responsible for repair of existing steel, and riveting of replacement/replicated sections including replicating new riveted bottom edge bracing and vertical end posts. Bach Steel also responsible for disassembly and reassembly of truss.
  - Name of the riveting supervisor(s) on the project: Nels Raynor and Derek Pung
  - Bridge Owner: Pennsylvania Department of Transportation

• **Project: CR-125 (Providence Road) over Little Brazos River, Robertson County, Texas**
  - Year the work was completed: 2012-2014
  - Brief description of the work performed: Full in-kind repair and restoration of this historic metal truss bridge for continued vehicular use. Steel work: Bach Steel was responsible for repair of existing steel, riveting of replacement/replicated sections including base of end posts.
  - Name of the riveting supervisor(s) on the project: Nels Raynor
  - Bridge Owner: Robertson County, Texas, Texas Department of Transportation Oversight.
- **Project: CR-120 (Wildcat Bridge Road) over Little Brazos River, Robertson County, Texas**
  - Year the work was completed: 2012-2014
  - Brief description of the work performed: Full in-kind repair and restoration of this historic metal truss bridge for continued vehicular use. Steel work: Bach Steel was responsible for repair of existing steel, riveting of replacement/replicated sections including base of end posts.
  - Name of the riveting supervisor(s) on the project: Nels Raynor
  - Bridge Owner: Robertson County, Texas, Texas Department of Transportation Oversight.

- **Bunker Mill Bridge, Kalona, Iowa**
  - Year the work was completed: 2013-2015
  - Brief description of the work performed: Repair and restoration of this historic metal truss bridge for pedestrian use.
  - Name of the riveting supervisor(s) on the project: Nels Raynor
  - Bridge Owner: Julie Bowers, Workin’ Bridges (North Skunk River Greenbelt Association)

- **Project: BR 1102(020) CR Piano Bridge Road, Fayette County, Yoakum District, Texas**
  - Year the work was completed: 2012
  - Brief description of the work performed: Full in-kind repair and restoration of this historic metal truss bridge for continued vehicular use.
  - Name of the riveting supervisor(s) on the project: Nels Raynor
  - Bridge Owner: Fayette County, Texas, Texas Department of Transportation Oversight.

- **Project: State Street over Cass River**
  - Year the work was completed: 2010
  - Brief description of the work performed: Extensive restoration of trusses in a shop setting. Trusses disassembled and restored in a shop setting. Some of the more noteworthy work requiring riveting was installation of new cover plate to existing top chord and end posts using riveting, and splicing replicated (riveted) pin plates for vertical members.
  - Name of the riveting supervisor(s) on the project: Nels Raynor
  - Bridge Owner: Bridgeport Township in Saginaw County. Michigan Department of Transportation Oversight.
- **Project: Sterling Road Bridge, Morenci, Michigan**
  - Year the work was completed: 2004
  - Brief description of the work performed: Complete restoration of the truss parts for this bridge which was relocated to Morenci, Michigan for pedestrian use. The extensive deterioration on the bridge required hot metal riveting, and replication of deteriorated sections of truss members, and welding plate to address areas of section loss. Eyebars with section loss were pad welded to repair them. Bach also did selected repairs to the existing floor beams and installed new rivets where needed.
  - Name of the riveting supervisor(s) on the project: Nels Raynor
  - Bridge Owner: Michigan Department of Transportation Oversight for City of Morenci.

- **Kent Street Bridge in Portland, Michigan**
  - Year the work was completed: 2004
  - Brief description of the work performed: Restored, reassembled, and reinstalled this large 220 foot through truss span in a new location over the Grand River for pedestrian use on Portland’s trail system. The restored bridge is pictured to the left. Due to the size of the bridge and restrictions on the type of work that could be performed in the water, a special tramway system was designed to erect and deploy the bridge over the river in sections.
  - Bridge Owner: City of Portland

Information and details on additional projects available upon request, or at our website [www.bachsteel.com](http://www.bachsteel.com)

**Bach Steel General Project References**

We also encourage you to contact Bach Steel’s references below to discuss relevant projects and experience our firm has working with historic metal bridges. Our references are as follows:

Brion Klopf, Michigan Department of Transportation (Reference For Michigan Projects)
Bridge Operations / Steel Fabrication Specialist
(517) 204-6701
klopfb@michigan.gov
Letter of Recommendation

Dec 7, 2010
Subject: Letter of Recommendation

To whom it may concern:

I have worked with Nels Raynor on numerous Michigan Department of Transportation projects. He has shown that he has an excellent working knowledge of structural steel, particularly in the preservation of historic bridges. He has disassembled, repaired, and reassembled multiple historic bridges for the Department of Transportation with a superb quality of workmanship which is hard to find. He is a craftsman in the sense of having the ability to restore antique components with modern equipment meeting today's standards and specifications. He has an unlimited all position welding qualification with the Michigan Department of Transportation and has shown an expertise in all the tools required for this type of construction including torch and saw cutting, rivet removal and installation, and repair of section loss. He has my recommendation for any type of structural steel work which you may require.

If you have any questions feel free to contact me at the number listed below or by E-mail at: klopf@michigan.gov

My working title is "Steel Fabrication Specialist".

Thank you;
Brion Klopf
Bridge Operations
(517) 204-6701

Contact Information

Nels Raynor, Owner and President
Address:
Bach Ornamental and Structural Steel Inc.
4140 Keller Rd
Holt, Michigan 48842

Phone: 517-581-6243

Email: nels@bachsteel.com
Website: www.bachsteel.com
Facebook: www.facebook.com/bachsteel