Bridge Design and Resource Survey

The National Steel Bridge Alliance (NSBA) is always looking to develop new and improve existing resources that address the needs of owners and the design community when it comes to bridges. This survey is intended to help us identify and prioritize those needs with the goal of making steel bridges faster and more cost effective to design, fabricate and construct.

We would greatly appreciate and encourage you to share this this survey with your colleagues; especially if you think someone else in your organization would be more appropriate. If you have any questions related to this survey, please feel free to contact John Hastings (hastings@aisc.org).

This survey is intended for practicing bridge engineers and it should take you approximately 15-minutes to complete.

Thank you for your participation,
John Hastings, PE
Bridge Steel Specialist | Southeastern Market
The National Steel Bridge Alliance

Background Information

Which best describes your current employer? *

- State Department of Transportation
- County Highway Department
- City/Local Highway Department
- Federal Agency
- Toll Authority
- Engineering Design Consultant
- Contractor
- Erector
-

How would you rate your level of experience designing the following superstructure types?

	Not at All Experienced	Slightly Experienced	Somewhat Experienced	Moderately Experienced	Extremely Experienced
Reinforced Concrete					
Prestressed Concrete					
Post-tensioned Concrete					
Steel Rolled Beams					
Steel Plate Girders					
Steel Tub Girders					

Project Experience

Please select the state you've most frequently designed bridges in: *

How frequently does your office perform work for the following owner types?

	Never	Very Rarely	Rarely	Occasionally	Frequently	Always
State Dept. of Transportation	○	○	○	○	○	○
County Highway Dept.	○	○	○	○	○	○
City Highway Dept.	○	○	○	○	○	○
Toll Authority	○	○	○	○	○	○

How frequently is your office involved with the following project delivery methods?

	Never	Very Rarely	Rarely	Occasionally	Frequently	Always
Design Bid Build	○	○	○	○	○	○
Design Build	○	○	○	○	○	○
Construction Manager / General Contractor (CM/GC)	○	○	○	○	○	○
Public-Private Partnerships (P3)	○	○	○	○	○	○

How frequently has your office designed highway bridges with the following SPAN LENGTHS?

	Never	Very Rarely	Rarely	Occasionally	Frequently	Always
Short Span (20' to < 140')	○	○	○	○	○	○
Medium Span (140' to < 200')	○	○	○	○	○	○
Long Span (200' to < 500')	○	○	○	○	○	○
Major Span (500' >)	○	○	○	○	○	○

How frequently has your office designed highway bridges with the following SUPERSTRUCTURE TYPES?

	Never	Very Rarely	Rarely	Occasionally	Frequently	Always
Reinforced Concrete	○	○	○	○	○	○

Prestressed Concrete	○	○	○	○	○	○
Post Tensioned Concrete	○	○	○	○	○	○
Steel Rolled Beams	○	○	○	○	○	○
Steel Plate Girders	○	○	○	○	○	○
Steel Tub Girders	○	○	○	○	○	○

To what extent do you agree with this statement: Steel bridges take more time to design than equivalent concrete bridges. *

	1	2	3	4	5	6	
Disagree Strongly	○	○	○	○	○	○	Agree Strongly

Bridge Cost Estimation

How frequently do you track the prevailing constructed costs for the following bridge types?

	Never	Very Rarely	Rarely	Occasionally	Frequently	Always
Reinforced Concrete	○	○	○	○	○	○
Prestressed Concrete	○	○	○	○	○	○
Post Tensioned Concrete	○	○	○	○	○	○
Steel Rolled Beams	○	○	○	○	○	○
Steel Plate Girders	○	○	○	○	○	○
Steel Tub Girders	○	○	○	○	○	○

What resources do you consult to assist with estimating the constructed cost of highway bridges? Check all that apply *

- ☐ State Department of Transportation Published Values (DOT)
- ☐ Federal Highway Administration (FHWA)
- ☐ Internal costing database
- ☐ Colleagues
- ☐ Regional Steel Fabricator
- ☐ Regional precaster
- ☐ Trade Association Representative
- ☐ Regional contractor
- ☐ Federal published indices
- ☐ I do not estimate constructed costs
- ☐ ______

Please rate the accuracy of the information you use to estimate the constructed cost of CONCRETE highway bridges? *

	1	2	3	4	5	6	
Inaccurate	○	○	○	○	○	○	Highly Accurate

Please rate the accuracy of the information you use to estimate the constructed cost of STEEL highway bridges? *

	1	2	3	4	5	6	
Inaccurate	○	○	○	○	○	○	Highly Accurate

To what extent do you agree with this statement: Steel bridges have a higher FIRST-TIME-COST when compared to equivalent concrete bridges. *

1 2 3 4 5 6

○ ○ ○ ○ ○ ○

To what extent do you agree with this statement: Steel bridges have a higher LIFECYCLE COSTwhen compared to equivalent concrete bridges. *

	1	2	3	4	5	6	
Disagree Strongly	○	○	○	○	○	○	Agree Strongly

Are you familiar with bridge link slabs? *

- Yes
- No

Link Slabs

How frequently do you design simple span steel bridges with link slabs? *

	1	2	3	4	5	6	
Never	○	○	○	○	○	○	Very Frequently

When designing simple span steel bridges with link slabs, how important would the following be?

	Not a Priority	Low Priority	Medium Priority	High Priority	Essential
Design Guide	○	○	○	○	○
Design Example	○	○	○	○	○
Design Utilities (e.g., Spreadsheet)	○	○	○	○	○
Educational Content (e.g., webinar)	○	○	○	○	○
Standard Details	○	○	○	○	○

To what extent do you agree with this statement: For multi-span steel bridges, simple spans with link slabs are EASIER TO DESIGN than equivalent continuous spans. *

	1	2	3	4	5	6	
Disagree Strongly	○	○	○	○	○	○	Agree Strongly

To what extent do you agree with this statement: For multi-span steel bridges, simple spans with link slabs are FASTER TO ERECT than equivalent continuous spans. *

	1	2	3	4	5	6	
Disagree Strongly	○	○	○	○	○	○	Agree Strongly

Lean-on Bracing

Are you familiar with lean-on-bracing? *

- ◯ Yes
- ◯ No

Lean-on Bracing

How frequently do you design steel bridges with lean-on bracing? *

	1	2	3	4	5	6	
Never	○	○	○	○	○	○	Very Frequently

When designing steel bridges with lean-on bracing, how important would the following be?

	Not a Priority	Low Priority	Medium Priority	High Priority	Essential
Design Guide	○	○	○	○	○
Design Example	○	○	○	○	○
Design Utilities (e.g., Spreadsheet)	○	○	○	○	○
Educational Content (e.g., webinar)	○	○	○	○	○
Construction Detail Drawings	○	○	○	○	○

To what extent do you agree with this statement: Steel bridges with lean-on bracing are EASIER TO DESIGN than those with full cross-frames. *

	1	2	3	4	5	6	
Disagree Strongly	○	○	○	○	○	○	Agree Strongly

To what extent do you agree with this statement: Steel bridges with lean-on bracing are FASTER TO ERECT than those with full cross-frames. *

	1	2	3	4	5	6	
Disagree Strongly	○	○	○	○	○	○	Agree Strongly

Superstructure Type Selection

Please select the degree to which the following people or agencies influence superstructure type selection

	Never	Very Rarely	Rarely	Occasionally	Frequently	Always
Bridge Owner	○	○	○	○	○	○
Public	○	○	○	○	○	○
Design Consultant	○	○	○	○	○	○
Contractor	○	○	○	○	○	○

To what extent do the following considerations influence superstructure type selection for highway bridges?

	Never	Very Rarely	Rarely	Occasionally	Frequently	Always
Reduction in Piers/Foundations	○	○	○	○	○	○
Transportation of Girders	○	○	○	○	○	○
Seismic Considerations	○	○	○	○	○	○
Span Lengths	○	○	○	○	○	○
Superstructure Depth	○	○	○	○	○	○
Construction Schedule	○	○	○	○	○	○
Contractor Means & Methods	○	○	○	○	○	○

LRFD Simon

The next few questions are specifically about the NSBA line girder analysis and design software LRFD Simon.

Are you familiar with LRFD Simon? *

- ○ Yes
- ○ No

LRFD Simon

How have you been using LRFD Simon? (Select all that apply) *

- ☐ Preliminary Girder Design
- ☐ Final Girder Design
- ☐ Secondary Checking of Other Software
- ☐ Only Testing/Evaluation for Possible Future Use
- ☐ I have not used it yet.
- ☐ I downloaded it but have not installed it yet

Please rate the likelihood of using the LRFD Simon software on your next bridge project. *

	1	2	3	4	5	6	
Very Unlikely	○	○	○	○	○	○	Very Likely

How likely is it that you would recommend using LRFD Simon to a friend/colleague? *

	1	2	3	4	5	6	
Very Unlikely	○	○	○	○	○	○	Very Likely

What aspects of the LRFD Simon software do you think should be improved? (Select all that apply)

- ☐ Documentation
- ☐ Tutorials
- ☐ User Interface
- ☐ Design and Analysis Results or Output
- ☐ AASHTO Code Checks
- ☐ Rolled Beam Support
- ☐ Interoperability with 3rd party software (e.g., LUSAS, CSI Bridge, AASHTOWare, etc.)

Do you have any additional suggestions for improving LRFD Simon?

Design Aids - Previous Bridge Designs

Have you ever used bridge designs or plans from previous projects to aid in the design of new bridges? *

- ◯ Yes
- ◯ No

Design Aids - Previous Bridge Designs

When using previous bridge designs or plans, how frequently do you use them for the following purpose?

	Never	Very Rarely	Rarely	Occasionally	Frequently	Always
Starting Point for New Design	○	○	○	○	○	○
Sanity Check of New Design	○	○	○	○	○	○
Reuse Standard Details	○	○	○	○	○	○
Reuse General Notes	○	○	○	○	○	○

Design Aids - Standard Steel Bridge Designs

During the design phase, would standard girder designs be valuable for straight steel bridges? *

- ◯ Yes
- ◯ No

Design Aids - Standard Steel Bridge Designs

When designing a steel bridge with the span configuration below how useful would the following standards be?

	Not Useful	Somewhat Useful	Useful	Extremely Useful
Single Span	○	○	○	○
Symmetrical Two Span Continuous	○	○	○	○
Balanced Three Span Continuous (.78L, L, .78L)	○	○	○	○
Four Span Continuous (.78L, L, L, .78L)	○	○	○	○

Design Aids - Standard Steel Bridge Designs

For a steel bridge, please rate the relative degree of difficulty for the following bridge design phases.

	Very Easy	Easy	Neutral	Difficult	Very Difficult
Framing Plan Layout	○	○	○	○	○
Flexural Design	○	○	○	○	○
Shear Design	○	○	○	○	○
Weld Design	○	○	○	○	○
Stiffener Design	○	○	○	○	○
Field Splice Design	○	○	○	○	○
Cross-Frame Design	○	○	○	○	○
Bearing Design	○	○	○	○	○
Design Drawing development	○	○	○	○	○
Shop Drawing Review	○	○	○	○	○

How useful would you find comprehensive bridge design examples? *

	1	2	3	4	5	6	
Not Useful	○	○	○	○	○	○	Extremely Useful

How useful would you find a digital library of common steel bridge details? *

	1	2	3	4	5	6	
Not Useful	○	○	○	○	○	○	Extremely Useful

Design Aids - Standard Steel Bridge Designs

Consider the following: A bridge site can accommodate a steel or concrete bridge. If standard designs were available for both materials, which design would you be more likely to move forward with? *

- ○ Steel
- ○ Concrete
- ○ Both

What most influenced your choice in the previous question?

Feedback

Please use the space below to provide feedback regarding steel bridge design resources that you might find useful.

Are you willing to be contacted by the NSBA to provide further feedback if necessary? If you respond "yes", you will also receive a complimentary registration to the 2023 NASCC: The Steel Conference in Charlotte, NC and have a chance to win a copy of the 16th Edition Steel Construction Manual when it is released next year. *

- Yes
- No

Contact Information

This information will only be used if we have any further questions regarding the answers you supplied in this survey.

Email *

example@example.com

Name *

First Name   Last Name

Thank you!

Please hit Submit below to record your response.

Do you have any additional suggestions for improving LRFD Simon?

Bridge Link Slabs