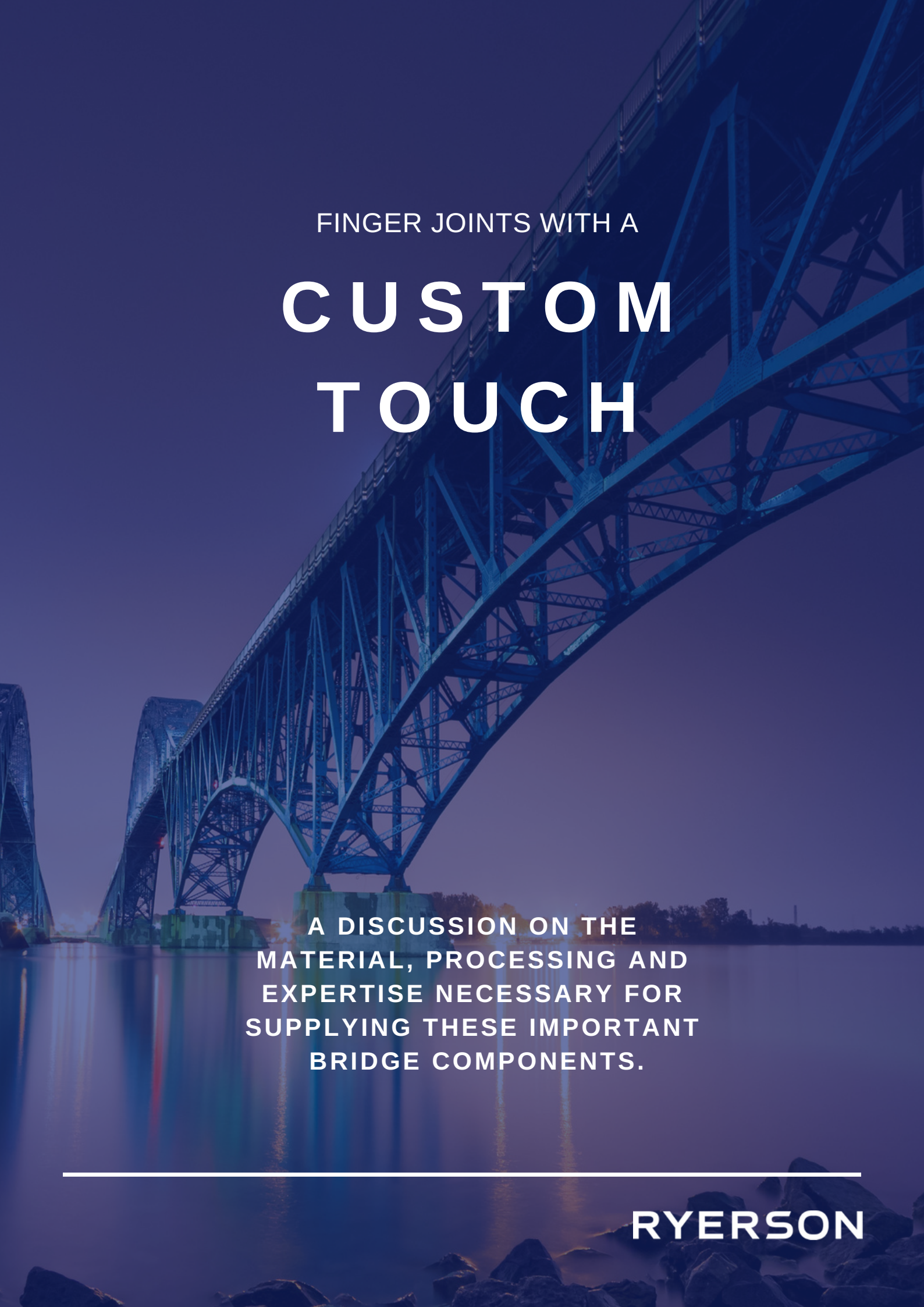
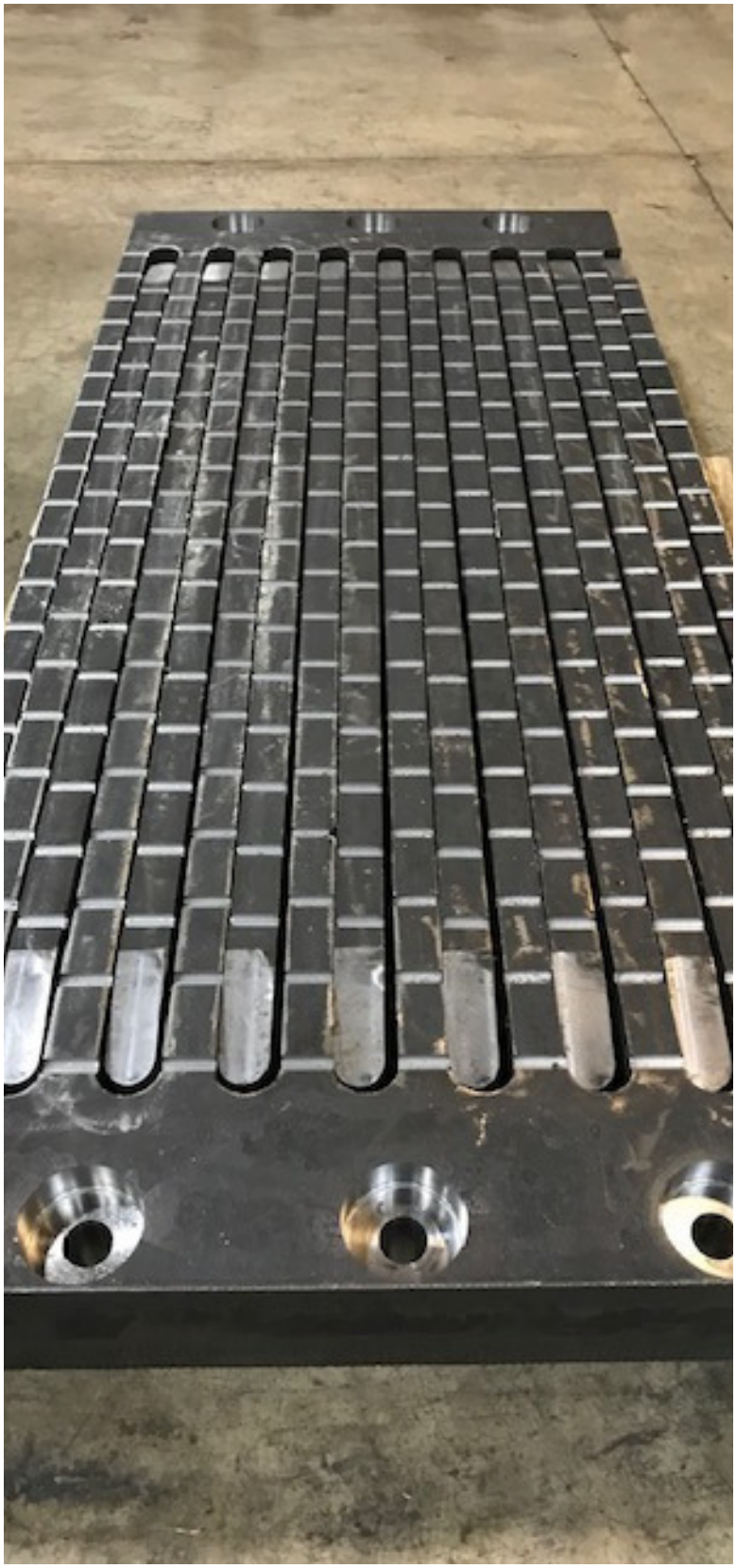


FINGER JOINTS WITH A

CUSTOM TOUCH

A DISCUSSION ON THE MATERIAL, PROCESSING AND EXPERTISE NECESSARY FOR SUPPLYING THESE IMPORTANT BRIDGE COMPONENTS.

RYERSON



188 MILLION

This is the average number of trips that Americans take across a structurally deficient bridge each day. This according to the American Society of Civil Engineers, which states that nearly four in 10 bridges in the United States are 50 years or older and will require roughly $123 billion in aggregate of rehabilitation in the coming years.

Finger joints are an integral part of nearly all bridges. These supported steel tooth expansion joints provide support to vehicles as they travel across bridge expansion joint openings, preventing water and harmful materials from contacting the steel support girders and bearings below.

These finger joints require a very specialized process and a great deal of patience due to the time they take to produce. Ryerson has proved to have both such qualifications. Perhaps it is why the leading engineering firms engaged in these projects across the country are customers of Ryerson.

A RYERSON Q&A

Terry McGrath, fabrication sales manager, and Matthew Stelzer, inside fabrication sales supervisor.

QUESTION:

WHAT GIVES RYERSON THE LEG-UP AGAINST THE COMPETITION WHEN IT COMES TO FINGER JOINT PROJECTS?

"There is an art to cutting these pieces ... "

Stelzer: There is an art to cutting these pieces. It is not just a straight-forward burning job; these fingers must be cut at different lengths, at very tight tolerances, and must be interlocked. It starts with custom length carbon plate.

We burn the plate in-house and work with a network partner to machine these pieces, which typically require counter-bore holes and bevels across the fingers. There is a lot that goes into the process, and our burning operators are highly skilled and experienced in finger joints. I'll repeat that there is an art to cutting these; something that our operators have perfected.

McGrath: Quite simply, not too many companies are willing to take on these types of jobs. If you look at a typical print and profile of one of these parts, you can see that it is a very high-risk burn job. For starters, you must be able to hold very particular tolerances with your cut or risk having the fingers across the joint become highly distorted. And for many companies that requires high-cost machining work that would ultimately drive the price too high. Ryerson does not have that issue because of our 'tribal knowledge' of the process and in-house capabilities to get it done.

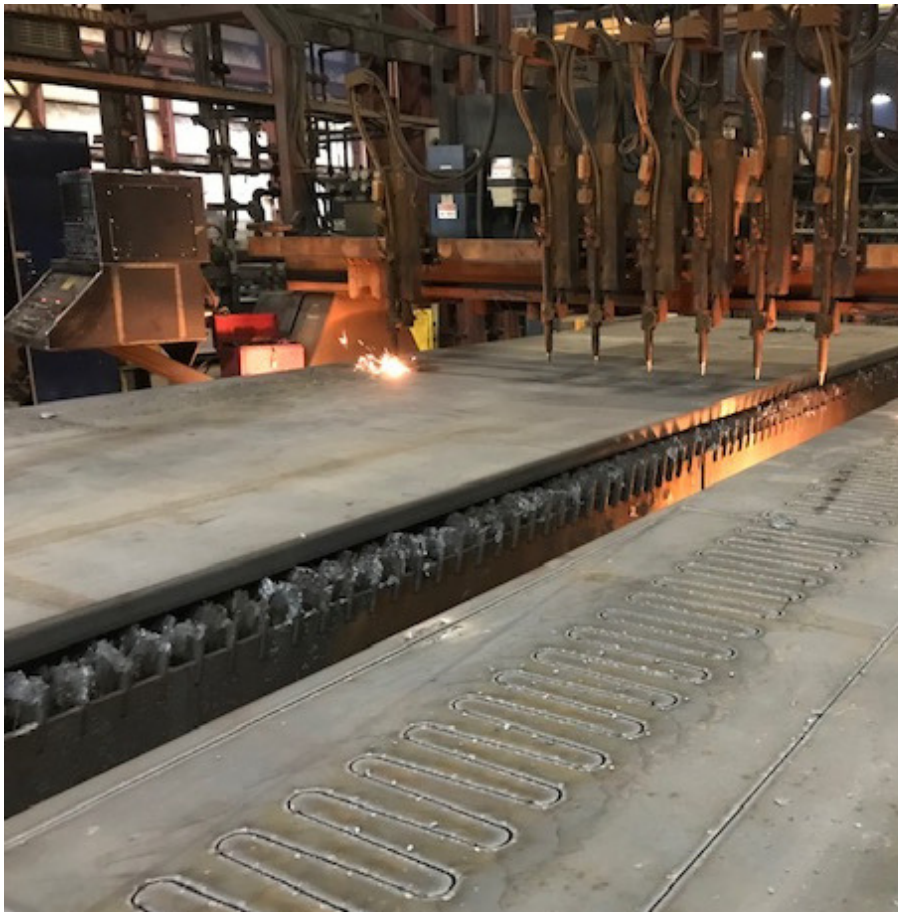
And really, no two finger-joint projects are the same. We are doing different levels of finger joints —some where we are just burning the profile and others where we are doing some additional machining work. For the latter, this requires a lot of beveling on the fingers, as well as drilled holes into the joints. Again, what makes us stand out is our willingness and capability to scale up and down based on the requirements of the needs of the customer.

QUESTION:

GIVEN THE LENGTH AND CUTS ASSOCIATED WITH THESE FINGER JOINTS, ONE WOULD THINK THAT WATERJET LASER IS THE IDEAL METHOD, BUT RYERSON EMPLOYS OXYFUEL INSTEAD. WHAT IS THE REASONING?

McGrath: It's true that when you first see the prints, waterjet is the method that comes to mind; one of the reasons being that this machine would result in little distortion. But in fact, with these parts, they tend to expand and contract based on temperatures and other conditions on the bridge. This means that the fingers need to fit snugly, and that requires very specific tolerances. With a waterjet machine you are taking far too big of a kerf with the cut, which results in too much space between the fingers, removing too much of the metal. Not to mention the fact that waterjet is much more costly than oxyfuel.

Stelzer: I'll add that with oxyfuel, the torches can be spread out—essentially allowing two plates to be cut at one time. That means we can cut them faster and get them delivered faster to the customer.



When compared to water-jet, oxyfuel presents a more optimal method for finger joints--and it's due to more than just the cost of the process.

QUESTION:

ANOTHER UNIQUE ASPECT TO THESE JOBS IS THE DURATION—WHICH COULD OFTEN BE MONTHS OR YEARS FROM QUOTE TO COMPLETION. WHAT ARE THE WAYS IN WHICH RYERSON IS THERE FOR CUSTOMERS THROUGHOUT THAT ENTIRE PROCESS?

39%

According to the American Society of Civil Engineers, of the 614,387 bridges in the National Bridge Inventory, almost four in 10 (39%) are over 50 years--which is the average life expectancy of a large bridge.

McGrath: One of the unique things about these types of jobs is the lead time; when we quote a job, it might not begin for six months or even two years later. And the price that they quote the DoT is what they are locked into regardless of that timeframe. We work with the customer as they go into the bidding process—and we quote price in-effect.

Stelzer: Another unique aspect is the release of material. Given the fact that these bridges can span hundreds of feet, the finger joints must be installed in smaller pieces. So as the engineers slowly release the drawings to us over a period, we must work to ensure an accurate and timely delivery of parts to match up with that release schedule.

The parts must be delivered interlocked, because that is the way they will be used in the field. We work with our CNC group to nest them and to figure out the best yield. From there, we work with the customer on the cadence of delivery. For example, let's say they want 36 sets delivered at one time, we will have skids piled 3-4 high direct shipped to the field.

When you look at it in general, what you have are these bridges that have been in existence for many years and need maintenance. Finger joints are a small but important part of the metal that goes into these projects overall—and we are proud to play a role in the process.

Let us know how we can help on your next finger joint project. Contact us:
advancedprocessing@ryerson.com