Lessard Portable Bridge Superstructures
Full Highway Loading
Designed for Single Lane Low Volume Crown Land Access Roads
Modular or Two Section Design

Designed for a CL-625 Ontario truck as per the CHBDC CAN / CSA-S6-14
**What are these bridge superstructures designed and certified for?**

Lessard Portable Bridge Superstructures are designed and certified for a *vehicle wheel loading of the CL-625 Ontario truck* as required by the Canadian Highway Bridge Design Code (CHBDC) CAN/CSA-S6-14. In accordance with code, the design is sealed by two professional engineers, verifying compliance with the CHBDC.

Lessard Portable Bridges are also certified to exceed the standards identified in the Ministry of Natural Resources and Forestry (MNRF) “2008 Crown Land Bridge Management Guidelines”. These portable bridge superstructures are designed for ease of installation and use on low volume crown land access roads. In general, any vehicle that does not require special permitting on Ontario Highways can safely and legally use our portable bridges.

![Bridge Diagram](image)

**Can these bridge superstructures be installed for temporary and/or permanent applications?**

Yes – with proper authorization from MNRF, Lessard Portable Bridges can be used as a temporary or a permanent bridge solution.

**What do I need to know about the bridge SUBstructure (abutments/cribbing)?**

Lessard Portable Bridges can be used with MNRF standard bearing substructures or in the instance of a crib or abutment, the substructure MUST be separately designed by an engineer to safely support the bridge superstructure and to suit site-specific ground conditions.

All bridge substructures must provide 12” (300 mm) of continuous support under the bridge at each end of the bridge. Typical substructures; including MNRF bearing pads, are at least 16 ft. (4 875 mm) in width.

Lessard Welding offers custom fit solutions to fit the Lessard Portable Bridges between *existing abutments*, however, the existing abutment must be inspected by a Professional Engineer and approved for installation. Exact measurements are required and must be submitted at the time of order.
How does the Lessard Bridge Superstructure’s design make life easier?

a) SAFE AND DURABLE DESIGN
The Lessard Bridge Superstructures were professionally designed with safety in mind. Our heavy duty design consists of 2 separate sections; each having four girders for a total of eight girders per bridge superstructure. The inside of the girders are reinforced with cross members (diaphragms) that provide lateral support to steel stringer beams during loading. Bridge decking consists of a 3/8” (10 mm) thick steel checker plate that is supported across all steel stringers by “C” channels at 12” (300 mm) centers. The reinforcing prevents checker plate deformation and evenly distributes vehicle loads across each steel stringer. There are bridge structures on the market with only a checker plate deck and no reinforcing, please exercise careful consideration with these as they may not meet code requirements.

b) SIZE AVAILABILITY AND LOW PROFILE
We offer multiple bridge lengths together with a low structure profile that are easier to transport, handle and install. Each section measures 7’ 6” wide. Once installed, the bridge offers a total running surface width of 15’ 4”.

<table>
<thead>
<tr>
<th>Superstructure</th>
<th>20 ft.</th>
<th>30 ft.</th>
<th>40 ft.</th>
<th>50 ft.</th>
<th>60 ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>18”</td>
<td>20”</td>
<td>22”</td>
<td>25”</td>
<td>28”</td>
</tr>
</tbody>
</table>

c) TAPERED OR SQUARE ENDS
Customers may request the type of ends that best suits their application at no additional charge, whether your bridge will be used on gravel roads, on existing wooden cribs or next to paved surfaces. **Tapered end bridges** are excellent for use in temporary installations where gravel can be tapered up and onto the bridge and prevents exposed ends that could be damaged during snow plowing operations. **Square end bridges** are best suited for use on permanent installations at sites with existing wooden cribs with decks where an exact elevation match is required. They are also well suited for municipal and urban settings where roads are currently paved.
d) **HIGH STRENGTH STEEL CHECKER PLATE DECKING**
Lessard Bridge Superstructures are shipped complete with a 3/8" pre-welded steel checker plate deck. This feature alone can save you costs in labor and deck materials.

![High strength steel checker plate decking](image)

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e) **HIGH QUALITY COATING AND ANTI-SLIP SURFACE**
We apply a high quality coating to the entire structure including underneath the bridge. In addition, as part of the painting process, a dense grit product is added that helps prevent workers from slipping and falling during construction and provides additional tire traction after installation.

![High quality coating and anti-slip surface](image)

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f) **LEVEL FLUSH DECKING**
The decking is designed to ensure a level and flush surface from one section to the other and with substructure planning, this will ensure that heavy vehicles smoothly cross the bridge surface. Impact loading caused by uneven surfaces can significantly reduce the lifespan of bridge stringers. An even surface will also ensure that plow and grader operators don’t have to worry about damaging the surface. Since the sections are fabricated with precision, the gap in between the two sections is very small (± 1/8”) and will reduce or eliminate road materials from entering the water body below.

![Level flush decking](image)

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g) **GUARD RAIL POCKETS**
These standard 8” x 8” pre-welded guard rail pockets are spaced in accordance with OPSD requirements for posts and/or guiderail if warranted. Our design requires the installation of curbs that are a minimum of 280 mm high. This allows our bridge superstructures to be used in uncontrolled traffic areas.

![Guard rail pockets](image)
h) **DECKING ACCESS POINTS**
There are access points or "cut outs" in the surface of the decking to allow installers to bolt the two sections together. Self-Locking Cover Plates are provided to ensure all openings are well covered and that the deck surface remains level and flush.

![Decking Access Points Image]

i) **PULLING LUGS**
There are (8) Pulling Lugs pre-welded to each end of each section for a total of (16). These lugs are reinforced to provide safe lifting and pulling locations for easy bridge installation.

![Pulling Lugs Image]

j) **LIFTING LUGS**
There are (4) recessed Lifting Lugs welded within the deck surface. We also provide (4) Lifting Slings for your convenience. These lifting locations are ideal for loading, offloading and bridge installation. Cover caps are provided to cover the lifting lug openings for a safe walking surface.

![Lifting Lugs Image]

k) **TIE DOWNS AND TIE DOWN GUIDES**
The Tie Downs are used to connect each bridge sections together. The Tie Down Guides are small pieces of angle iron welded to the top of the Tie Downs of section #1 (as shown in photo) to ensure quick and easy alignment of section #2. When aligning both sections together, we recommend using a larger steel pull/crow bar to align the holes perfectly and to keep hands away from the connection while moving bridges. Once all Tie Downs are aligned, simply insert a bolt into the hole.

![Tie Downs and Tie Down Guides Image]
I) **NUT LOCKING BARS**
Once the bolts are inserted into the holes of the tie downs, simply position the nut underneath the tie down and carefully hold it in between the two Nut Locking Bars. You are now able to torque the bolt into place from the top of the deck.

m) **STRUCTURAL GRADE BOLTS**
These are included with every bridge. Light oil or a product like “Never Seize” should be applied to the bolts during installation to ensure long term maintenance.

n) **EASY TO INSTALL OR REMOVE**
Typically, the installation of a Lessard Portable Bridge is simple. Each bridge section is clearly identified as either “Section 1” or “Section 2”. Bridge sections are typically delivered to the site one on top of each other with guard rail pockets on each section on different sides of the trailer. This small loading detail allows the installer to offload the superstructures and assemble them without having to rotate them 180° into position.

Shorter span structures (20ft to 30ft) can be easily lifted into position one at a time with either a small crane or medium sized track excavator. After the first section is placed, the second section is lined up with the first and nudged into position until the bolt holes from the Tie Downs line up. Supplied connection bolts are then used to join both sections. After connections have been made, the bridge can be adjusted slightly to ensure correct orientation and square with substructure bearing.

Longer span structures (40ft or longer) typically require either a large crane (80 ton capacity) or may require more than one excavator on either side of the bridge. If the latter method is used, the excavator on the same side as the offloaded bridge will typically forward the bridge towards the second excavator about 40 % of the span (measured at the top of the bank) towards the second excavator. The first excavator may also be able to place the leading end of the bridge temporarily at the base of the opposite bank. In either instance, the second excavator would then be chained off and lift in unison with the first excavator. Once in position, the second bridge section can be lifted on top of the first and then slid across to the excavator on the opposite side of the crossing. Both machines would then be used to finalize the bridge installation.
Removal of a Lessard Portable Bridge is just a simple installation but in reverse order. A Lessard Bridge can be placed, connected and in use in as little as one hour.

For further information, please refer to view our animated installation video on our website at www.lessardwelding.com. Please note, the video is intended to provide a general idea on installation and should not be used as guide.

o) **PRE-ASSEMBLED IN SHOP**
   Once fabrication is complete, shop personnel assembles the bridge on site by bolting the two sections together to ensure a problem free installation in the field.

p) **GRAVEL RETENTION PLATES**
   We provide (2) Gravel Retention Plates, one for each end. These prevent road bed gravel at each end of the bridge from eroding between the two bridge sections. Field installation is required.

q) **PRE-DRILLED ANCHOR HOLES**
   Each bridge section has pre-drilled anchor holes at each corner of the end beams. One end has round (fixed) holes and one end has slotted holes that allow for the expansion and contraction of the bridge superstructure caused by heat and cold temperatures. All four corners are to be fastened to the abutment. Anchor bolts are NOT provided as it depends on the engineered abutment design required.

r) **UNIQUE IDENTIFICATION NUMBER**
   Every Lessard Portable bridge has its own unique identification number for easy record keeping purposes (required by the 2008 OMNRF Crown Land Bridge Management Guidelines). During fabrication, an identification plate is welded to the outside stringers of each bridge section. The ID plate provides a unique bridge identification number, the section no. and the weight of the bridge section. Every bridge manufactured by Lessard Welding is located in our up to date database. In instances where a used bridge is being re-sold, we can advise customers on the original purchaser, purchase date and other sales information.
s) PROFESSIONAL INSPECTION
In accordance with CWB standards and our high quality control standards, every portable bridge fabricated by Lessard Welding is subject to a final inspection by a 3rd party professional engineer before shipping. The purpose of the inspection is to ensure completeness and adequacy of fabrication in accordance with the detailed drawing as designed and approved by the bridge designer. A copy of the report is provided to the customer.

t) LETTER OF CONFIRMATION
This letter confirms the bridge details such as the bridge identification number, length, type of ends, bridge drawing information and customer information. A copy of the letter is provided to the customer.

u) GENERAL ARRANGEMENT DRAWING
A copy of the general arrangement drawing is also provided to the customer. This drawing shows the two engineer’s stamps. A copy of this drawing is provided to the customer.

Almost done...

SHIPPING
Shipping is NOT included in the price of our bridges but is available for an additional cost. Special MTO permits may be required depending on the bridge length. Advance notice of pickup date is required as special lifting equipment may be required.

BRIDGE SUPERSTRUCTURE MAINTENANCE REQUIREMENTS
Simple maintenance can dramatically extend the lifespan of a Lessard Portable Bridge. Maintenance activities include:

- Routine visual inspections to confirm that the bridge is fully supported at each end by a level and sound substructure.
- Removing gravel buildup on the steel deck with a push broom. Gravel by itself is abrasive to painted surfaces and in larger volumes can retain water that will accelerate surface rust.
- Store portable bridges horizontally and elevate them on blocks. The blocking will ensure that the bridge stringers do not come in direct contact with standing water.
- Use only the lifting locations identified to move a portable bridge. Lifting at other locations may damage flanges, decking and guard rail pockets.
- Power wash bridges in storage to remove accumulated soil materials.
- Store smaller bridge parts (bolts, washers, nuts and plates) in an interior location.
- Greasing or oiling all bolts, washers and nuts is advisable.
- Periodic sandblasting and painting of bridges in storage is also advisable.
Last but not least...

Established in 1974, we have over 42 years of experience, the expertise and the resources to deliver a wide range of high quality welding products - including bridges. We are family owned and operated with a reputation that matches our experience. We also offer bilingual services - from ordering products to continued technical support.

Premier Fabrication Standards and Quality control are built into every Lessard Portable Bridge Superstructure. Lessard Welding is certified to CSA Standard W47.1 in Division 2 by the Canadian Welding Bureau and maintains a superior Quality Management System which complies with the requirements of the ISO 9001:2008 standards.

Other questions?
If you have any other questions, please feel free to communicate with us at any time!

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