LESSARD WELDING

Full Highway Loading Bridges – Modular Type

Designed for Low Volume Roads

CL-625 Ontario Truck Design - CHBDC CAN / CSA-S6-14

Meets:
2016 MTO Exceptions to Canadian Highway Bridge Design Code.
2008 MNRF Crown Land Bridge Management Guidelines.

INFORMATION GUIDE

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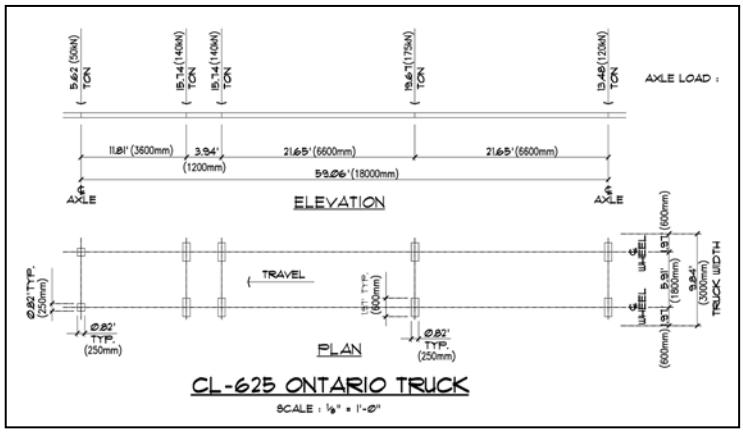
What are these bridge superstructures designed and certified for?

Lessard Modular Bridge Superstructures are designed and certified for the **Ontario CL-625 vehicle wheel loading 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 Modular Bridges are also certified to exceed the standards identified in the Ministry of Natural Resources and Forestry (MNRF) "2008 Crown Land Bridge Management Guidelines". They are also certified to meet the MTO 2016 "Exceptions to the Canadian Highway Bridge Design Code, CSA S6-14, For Ontario". These modular portable bridge superstructures are designed for ease of installation and use on low volume roads. In general, any vehicle that does not require special permitting on Ontario Highways can safely and legally use our portable bridges.



Can Lessard bridge superstructures be used for temporary and/or permanent applications?

Our bridges meet both the 2016 MTO exceptions to code and the 2008 MNRF Crown Land Bridge Management Guidelines. They 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 are compatible for use with MNRF standard bearing pads and crib substructures. In the case of a new Lessard bridge product being installed on an existing MNRF substructure, a condition evaluation of the existing substructure by a Professional Engineer may be required.

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.

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How does the Lessard Bridge Superstructure's design make life easier?

a) SAFE AND DURABLE DESIGN

The Lessard Bridge Superstructures are 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.

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".

Superstructure	20 ft.	30 ft.	40 ft.	50 ft.	60 ft.
Height	18"	20"	22"	25"	28"

We are also able to offer custom lengths up to 60 ft. In this case, there are different approaches for the drawings:

For example, a customer requires a bridge to be 34 ft. long, we can provide the following:

1. A standard 40 ft. general arrangement drawing for your custom bridge – no extra cost.
2. A sealed letter from a Professional Engineer certifying bridge capacity and that the 34 ft. bridge was fabricated using the 40 ft. standard bridge design – there would be an additional cost for this option.
3. A new general arrangement drawing reflecting the exact measurement of the new bridge – there would be an additional cost for this option.

c) TAPERED OR SQUARE ENDS

Our bridges are manufactured with either a tapered or square end at no additional cost.

Tapered Ends

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.

Square

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.

e) HIGH QUALITY COATING AND ANTI-SLIP SURFACE

All of our steel beam members are shot blasted, this added process ensures the best possible bond between paint and steel. 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.

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.

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g) GUARD RAIL POCKETS

Standard 8” x 8” pre-welded guard rail pockets are spaced in accordance with OPSD requirements for posts for curbs and/or guiderail (if required). 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.

Standard Pre-Welded Pockets

Included

Reinforced Pre-Welded Pockets

Optional

Coming soon!

Design is currently under development

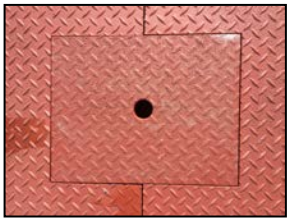
Bolted Pockets

Field Installation Required

Optional

h) DECKING ACCESS POINTS AND WEIGHTED COVER PLATES

There are access points or "cut outs" in the surface of the decking to allow installers to bolt the two sections together. Weighted Cover Plates are provided to ensure all openings are well covered and that the deck surface remains level and flush. We recommend using epoxy to secure the cover plates.



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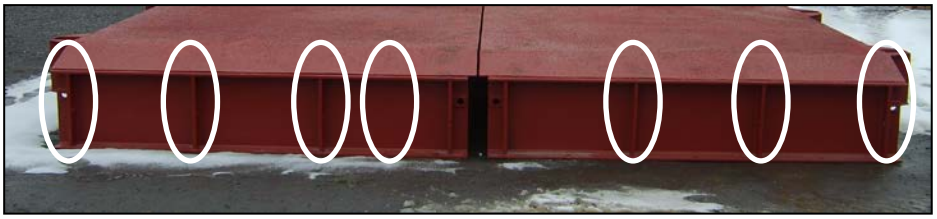
i) PULLING LUGS

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.



j) LIFTING LUGS

There are (4) recessed Lifting Lugs welded within the deck surface. We also provide (4) Load Rated 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.

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.

l) 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.

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n) EASY TO INSTALL OR REMOVE

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^{o} 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 placed on the first and then slid across to the excavator on the opposite side. 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.

Bridge Specifications

One bridge consists of two (2) sections. Please find specifications of each section for each standard bridge available.

Bridge Span	Dimension and Weight per Section			
	Length	Width	Height	Weight
20 ft.	20 ft.	7' 6"	18"	6,000 lbs
30 ft.	30 ft.	7' 6"	20"	11,000 lbs
40 ft.	40 ft.	7' 6"	22"	17,000 lbs
50 ft.	50 ft.	7' 6"	25"	24,000 lbs
60 ft.	60 ft.	7' 6"	28"	41,000 lbs

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o) PRE-ASSEMBLED IN SHOP

As part of the fabrication process and quality control, our modular bridges are shop assembled before shipping to ensure each section is an exact match and that assembly in the field is hassle free.

p) SOIL RETENTION PLATES

We provide (2) Soil 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 Modular 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) INTERNAL INSPECTION

In accordance with CWB standards and our high quality control standards, every bridge fabricated by Lessard Welding is thoroughly inspected by a certified welding inspector. The inspection ensures completeness and adequacy of fabrication in accordance with the sealed drawings.

t) LETTER OF CONFIRMATION

All customers receive a letter confirming bridge fabrication details, including bridge identification number, length, type of ends, drawing information, purchase date and purchaser information.

u) GENERAL ARRANGEMENT DRAWING

All customers receive a general arrangement drawing that provides basic measurements and assembly information for the product purchased.

v) CERTIFICATE OF CONFORMANCE – OPTIONAL

There are instances where customers may require a certificate of conformance. We hire the services of a professional engineer to perform a certified inspection of the bridge prior to shipping it. 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 certificate of conformance is provided to the customer. Additional costs are applicable for this option.**

Shipping - Optional

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 dimensions.

a) If you are PICKING UP your bridge…

- You will need to inform us ahead of time of the date and time you plan on picking up your bridge as we may need to make special lifting arrangements to load the bridges.
- Flatbed trailers are the preferred type of trailer for us to load your bridges. If you don't plan on using a flatbed trailer, we will likely encounter loading challenges and therefore you must communicate with us prior to the shipping date to discuss your plan, otherwise you may risk the possibility of NOT getting loaded at all, or having to wait for a crane to come on site which could lead to a loading charge of approximately 1000$.
- Uneven deck type trailers such as goose necks are acceptable, however, the driver must arrive equipped with blocks to level off the load as we are not equipped with outdoor cranes therefore we use our lifting equipment to load the bridges which are not designed to load bridges on an angle.
- Logging trailers with pickets are acceptable, however, please note, that pickets will need to be removed by the driver on the one side. Please note that you may not be able to put the pickets back into place afterwards due to where the bridge pockets line up on the trailer.
- Please know that it is possible to ship more than one bridge on one truck depending on the quantity and spans ordered.

b) If WE ARE SHIPPING your bridge…

- You will need to inform us ahead of time of the date and time delivery is required.
- You will need to send us by email a site address, map or driving instructions as well as a site contact.
- Please know that it is possible to ship more than one bridge on one truck depending on the quantity and spans ordered.

Bridge Maintenance Requirements

Simple maintenance can dramatically extend the lifespan of a Lessard Portable Bridge. Recommended maintenance activities include the following:

- 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.

Other Information

Established in 1974, we have quite a few 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.

CWB CERTIFIED

Certified System ™

ISO 9001
QMI-SAI Global
001723

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

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