

Rural Products

Product Brochure



Busck's operations are ISO9001 certified as well as being Certified Plants meeting the high standards set by Concrete NZ.

Busck offer a range of precast concrete products to the rural sector. These elements form part of bridges, "Herdhome" stock sheds, dairy sheds, underpasses and other farm structures.

We offer efficient, economic, environmentally friendly technology for these systems.

Bridge deck units are designed in-house and made using our Unispan, Double Tee and Double Hollowcore standard products connected to abutments and piers either constructed on-site or we also manufacture precast supports. Having large prefinished elements made off-site lends for fast build sequence.



Bridges

Features

The bridge deck units do not require temporary propping and once in place provide an immediate working platform.

Being made of pre-finished units minimises the quantity of ready-mix concrete being delivered to remote sites and potential environmental hazards.

Our products are made of accelerated cured high strength concrete that allows the bridge to be functional just a few days after installation.

Quality assured pre-stressed concrete products have a well proven performance history of surviving harsh environments over a long period of time.

Busck bridge deck units are manufactured to length in steel moulds to provide a smooth underside and a light broom finish is applied to the top for skid resistance.

Durability

Busck's precast concrete products are typically manufactured with the strength and cover to reinforcement to achieve 50 year design life in exposure classifications A1, A2, B1 & B2 prescribed in section 3 of the New Zealand standard NZS3101:Part 1:2006. Longer design life and/or precast concrete elements in environmentally more extreme environments, such as coastal marine areas are achievable.

Bespoke Bridges

Busck design capability is not limited to our standard unit sections of Unispan, Double tees and Hollowcore rural bridges. We are able to work with you to offer solutions for bridges that meet your specific requirements; eg deck slab concrete panels, pre-stressed or not, connected to large steel girders.

Due to project remoteness and difficult site access below the deck, in-situ deck topping slabs and propping is usually avoided. Busck can design bridge deck systems that incorporate topping slabs and propping.

Contact Busck's experienced qualified engineers to discuss your specific needs.



Deck Bearing and Connections

Busck provide standard deck unit bearing details on abutments and piers. Unispan and Hollowcore decks tend to use grouted dowels cast in the support aligned with ducts or rebates cast in the deck units. Double tees use bolts that pass through drilled holes in the legs and brackets with slotted holes cast in the support. All units bear on 150mm wide rubber pads or strips.

Joints between Unispan and Double tee deck units incorporate aligned pockets, cast in link bars and non-shrink grout to fill the rebate. Hollowcore units involve filling an in-situ shear key with 30MPa ready-mx concrete then post-tensioning five transverse bars or strand at each end and equal spacings along the span.

Inserts and holes are cast into the outer edge of the deck units to connect our standard light handrail and kerb or we will accommodate your desired detail. Kerbs usually consist of a concrete nib to prevent stock effluent run-off into the waterway below.

All exposed steel connection componentry has a hot dipped galvanised coating unless in marine environments where stainless steel is required.

Camber

Busck rural bridge deck units will arrive at site with some positive camber or hog. This is unavoidable due to the nature of pre-stressing. The amount of hog will depend on a number of factors, including amount of prestress, how long the units have been manufactured and exposed to the elements and length of the unit to name a few variables. In our design we do consider long term shrinkage and creep effects.

Handling and Storage

Busck rural bridge deck units are usually designed to be lifted at the ends. Busck rural bridge abutment and pier elements are usually lifted at the distance length divided by 5 from each end. Reid Swiftlift type lifting anchors specifically designed are detailed on our shop drawings.

If the units are stored on site they will need to be dunnaged near the lifting eyes. If stacking the units dunnage blocks need to be aligned on top of each other so as to not induce large point loads on the units below. Care needs to be taken as to the suitability of the ground and dunnage block to resist the weight of the units stored on top.

Busck bridge unit section	Unit weight kg/m
150 Unispan rural bridge deck (units 1.225m wide)	470
200 Unispan rural bridge deck (units 1.225m wide)	625
300 Unispan rural bridge deck (units 1.225m wide)	935
445 Double Tee rural bridge deck (units 2.500m wide)	1130
745 Double Tee rural bridge deck (units 2.500m wide)	1430
650 Busck Hollowcore rural bridge deck (units 635mm or 1.145m wide)	625 or 1100
900 Busck Hollowcore rural bridge deck (units 635mm or 1.145m wide)	735 or 1275



Bridge Technical Information

Design Scope

Busck design expertise and responsibility lies with the elements we manufacture for which we provide producer statements to satisfy building consent. The foundation design and scour prevention detailing is by others. Contact Busck and we can arrange a geotechnical report for your site and a foundation design on request.



Loadings

Busck bridge elements are designed to meet the traffic loading criteria described in the New Zealand Transport Agency Bridge Manual (SP/M/022) third edition 2013.

Our standard design is applicable to a heavy vehicle representing 85% of highway loadings in accordance with appendix D for "lightly trafficked rural bridges" if your bridge is a single lane that has:

- i) A traffic count less than 100 vehicles per day.
- ii) A road that cannot become a through route.
- iii) An alignment is such that speeds are generally below 70km/hr.
- iv) The route is unlikely to be used by logging trucks.
- v) No significant overloads are expected to occur or the bridge can be bypassed.

Our designs incorporate a kerb and light handrail or barrier. Asphalt surfaces are excluded.

Busck also offer our 150, 200 and 300mm thick, 1.225m wide Unispan units to provide water race crossings for pivot irrigators. Our design allows for a wheel load of 2 tonnes spaced at 3m.

MAXIMUM SPAN TABLE	Stock/light vehicle Bridge Up to 6m wide, 500kg/m ² Pivot Irrigator Crossings Maximum span* (m)	85% of Highway (HN) Single lane up to 5m width Maximum span* (m)
Busck bridge unit section		
150 Unispan rural bridge deck (units 1.225m wide)	6.2	4.0
200 Unispan rural bridge deck (units 1.225m wide)	7.8	6.0
300 Unispan rural bridge deck (units 1.225m wide)	11.0	8.0
445 Double Tee rural bridge deck (units 2.500m wide)	12.0	9.3
745 Double Tee rural bridge deck (units 2.500m wide)	19.8	15.6
650 Busck Hollowcore rural bridge deck (units 635mm or 1.145m wide)	24.5	18.8
900 Busck Hollowcore rural bridge deck (units 635mm or 1.145m wide)	30.0	26.0

Bridge Gallery



Herdhomes

Busck is the sole licenced manufacturer and supplier of Herd Home basements and grated flooring systems in New Zealand and Australia.

A HerdHomes® Shelter is a covered area in which animals can relax, be fed, and lie down in comfort - all with a built-in and sustainable effluent system. It has many vital benefits for both farmer and herd - specifically increased animal welfare, reduced environmental impacts, increased milk production and a reduction in fertiliser costs.

HerdHomes® Shelters have so far been constructed on more than 300 farms across New Zealand. They've been tested and proven in the most challenging conditions; with large environmental and financial gains illustrated on numerous farms.



HerdHomes® shelters are a unique combination of:

- i) Clear and curved roof
- ii) Open sides and feed strips along the side
- iii) Concrete grated floor
- iv) Built in effluent system
- v) Effluent treatment

For more information contact Busck or visit the HerdHomes® website: www.herdhomes.co.nz



HerdHome Gallery



This HerdHomes® shelter system combines the best features of traditional stand-off areas, feed pads, and loafing areas into one innovative farming solution, with the added benefit of protecting the animal from hot summer sun, harsh winds and freezing winter temperatures.



Dairy Sheds



Busck manufactures a large range of precast concrete components for all types of dairy sheds primarily throughout New Zealand.



A photograph of a large group of calves in a modern barn. The calves are of various colors, including brown, black, and white. Many have yellow ear tags. They are standing on a bed of straw. In the background, there are metal railings and a large, open-sided structure. A speech bubble is overlaid on the image, containing the text: "I'm never MOOving from my Herdhome".

I'm never
MOOving from
my Herdhome



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DISCLAIMER: Information contained in this brochure is subject to change, consult Busck Prestressed Concrete for further information.

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