CONTECH®
ENGINEERED SOLUTIONS
A QUIKRETE® COMPANY

Railway Solutions











Railway Solutions

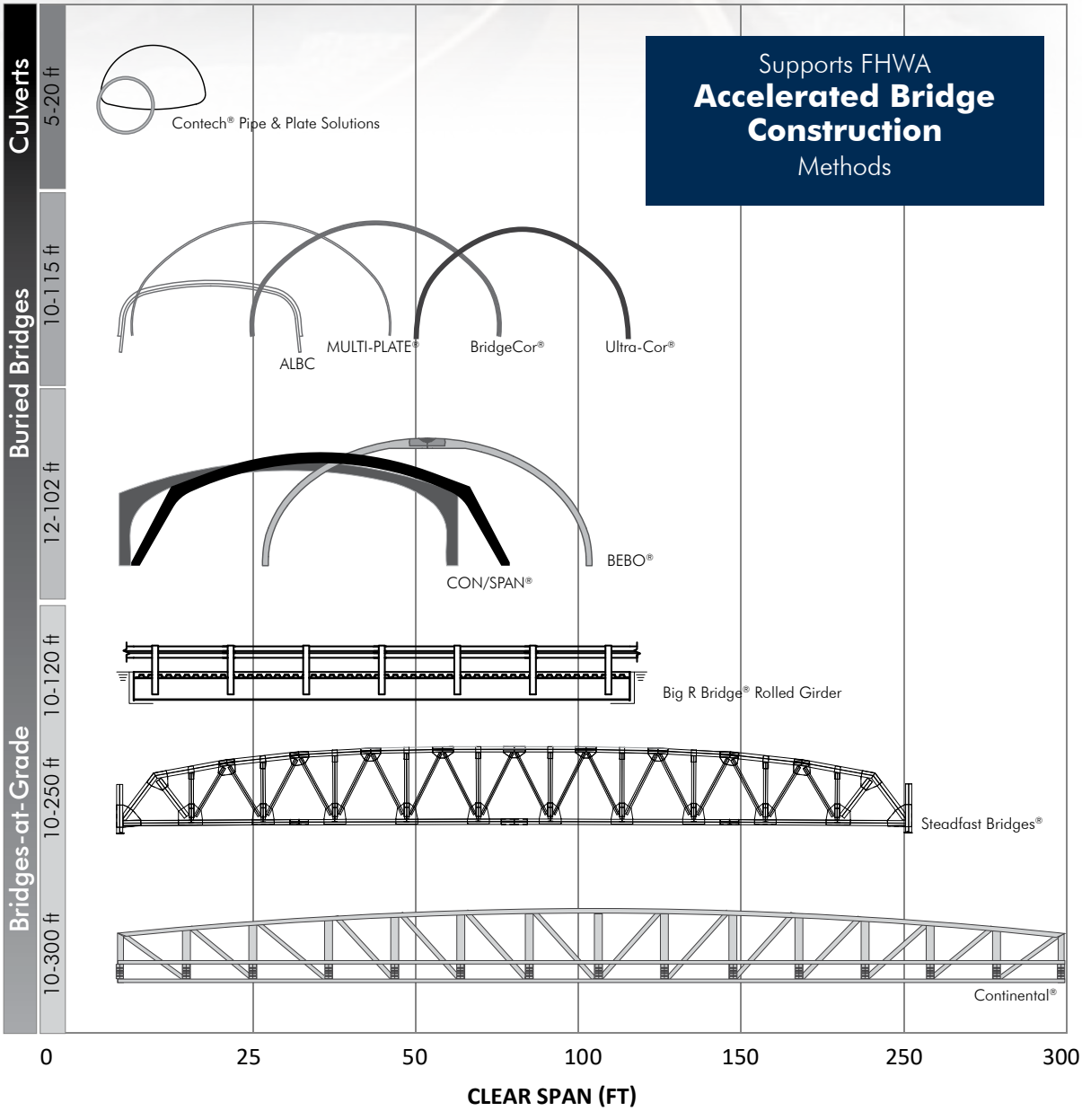
Contech® Engineered Solutions is the nation's leading producer of bridge, drainage, erosion control, retaining wall, sanitary, soil stabilization, stormwater and wastewater treatment solutions for the site development and rehabilitation markets. Contech products provide effective site solutions for projects with a variety of loading conditions, foundation requirements, soil and water environments as well as varied installation requirements, as it relates to bridge, pipe, erosion control, earth stabilization and stormwater applications.

Contech can help facilitate the design, development and the assembly of cost-effective railroad applications, including: railway overpasses and underpasses; stream crossings; prefabricated bridges; drainage and pipe options; stormwater treatment solutions; erosion control and retaining walls.

Clear Span Bridges & Structures

CULVERTS
PLATE
PRECAST
GIRDER
VEHICULAR
TRUSS
PEDESTRIAN

CONTECH PIPE SOLUTIONS
CONTECH STRUCTURAL PLATE
BridgeCor
ULTRA-COR
CON/SPAN-SERIES
CON/SPAN BRIDGE SYSTEMS
BEBO Arch Systems
BIG R BRIDGE
STEADFAST BRIDGES
CONTINENTAL BRIDGE



Bridges

Contech offers an unparalleled choice of structural plate, precast concrete arch and truss bridges for vehicular and pedestrian needs. Spans range from 5 feet to 300 feet. Our innovative prefabricated bridges minimize or eliminate track closure saving both time and money.

Railway applications include:

- Railroad Overpasses and Underpasses
- Grade Separations
- Pedestrian Traffic Separation
- Culvert and Stream Crossings

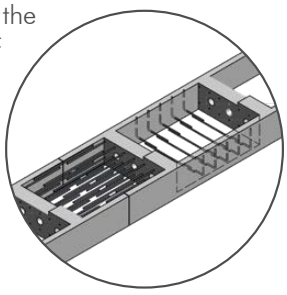
Precast

CON/SPAN® and **BEBO®** bridges can be adapted for use in tunnel applications or improving mine entrances. The arch shape is also ideal for supporting heavy loads and can be designed to AREMA specifications.

Contech CON/SPAN® and **BEBO®** bridges are fully engineered, precast modular component systems. The precast arch system, complete with headwalls, wingwalls and footings, delivers fast installation and is accompanied by extensive technical support.

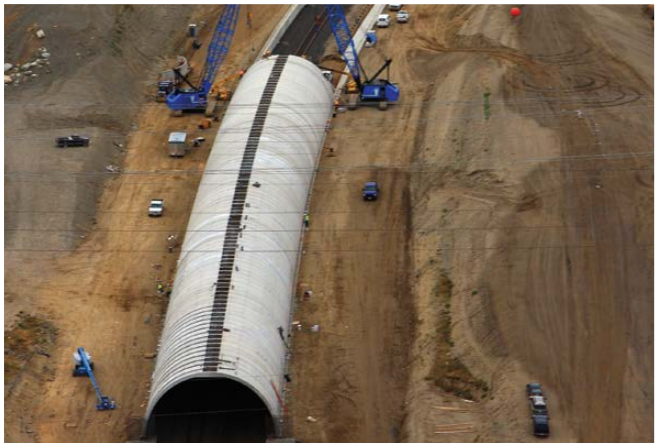
- Complete precast system
- Outstanding span to rise ratio for wide, low crossings
- Effective in extreme loading applications
- Spans from 12 feet to 102 feet

EXPRESS® Foundations – provides the speed of precast with the economy of cast-in-place. EXPRESS Foundations can be used in combination with any of the Contech bridge systems, accelerating construction time and providing substantial cost savings.





Railroad Overpass – Precast arch units support railroad loading over a roadway underpass.



Ease of Installation – Precast modules allow railroad tracks to remain in service during construction.



Railway Tunnel – This BEBO structure allowed enough clearance to accommodate the construction of a second railroad track.

Structural Plate

Contech's steel and aluminum structural plate offerings have a long history of strength, durability, economy and AREMA acceptance. These structures meet a wide range of site-specific challenges with a variety of sizes and shapes available.

MULTI-PLATE® bridges consist of field-bolted galvanized steel plates with a 6″ x 2″ corrugation.

BridgeCor® consists of field-bolted galvanized steel plates like MULTI-PLATE, but are manufactured in a 15″ x 5 ½″ corrugation. The deeper corrugation provides additional strength and stiffness for wider, clear span bridges.

Aluminum Structural Plate/SUPER-PLATE® bridges utilize a 9″x 2 ½″ corrugation along with external reinforcing ribs (when required) to handle required design loads. ALSP is made from aluminum material for added durability in harsh environments.

Structural Plate applications include the following:

- High combined live and dead loads
- Deep cover / Railroad loading applications
- Reline / Rehabilitation
- Vehicular tunnels / Grade separations
- Spans to 65 feet
- River and stream crossings



MULTI-PLATE® offers a wide range of shapes and sizes for specific site considerations – pipe arch with concrete paved inverts shown.



BridgeCor® structural plates unique corrugation allows for spans of up to 60 feet – ideal for railroad underpasses or large clearance areas.

Tunnel Liner Plate

Contech 2-Flange Liner Plate provides full circumferential load transfer with lapped joints for more effective ring stiffness.

Given these product attributes, Liner Plate provides for a safe working environment and a time-proven structural design for new utility tunnels, relining structures under highways and railroads and lining vertical shaft excavations.



Liner Plate & CMP caissons for rail utility lines.



Contech Signal Guards



Contech Tunnel Liner Plate offers optimum wall profile and shape stability for relining under live railroads while avoiding down time and lost revenue.

Bridges & Structures

Truss

Long clear spans and small footprints let you cross environmentally sensitive areas and wetlands with little or no impact on the environment. These prefabricated systems promise low maintenance and fast installation.

Steadfast® Vehicular Truss Bridges — provide economical solution due in part to the high strength to weight ratio of steel that meet ASHTO design specifications.

Applications include the following:

- County roads going over railroads
- Ability to accommodate skewed alignments
- Roadway widths up to 50 feet
- Vehicular clear spans from 10 feet to 300 feet

Big R® Modular Bridges — custom options to meet any site-specific requirements able to meet HL-93 design specifications due in part to the high strength to weight ratio of steel.

Continental® Pedestrian Truss Bridges – range from basic structures to unique design.

- Applications include footbridges, pipe support structures, railway overpasses and other innovative site solutions

Metal Walls

Contech Bin-Wall™ is a system of adjoining, closed-faced, 10-foot wide bins that flex against minor, unforeseen ground movements. The bins are sturdy, lightweight steel that are easily bolted together at the job site and in difficult or restrictive conditions. A fully enclosed face protects against the loss of fill material.

Contech Metric Sheeting is a lightweight sheeting that provides an economical and structurally sound solution for several types of temporary and permanent structures. Contech's wider sheets have fewer interlocks resulting in less permeability. In addition, Contech offers heavy gage Zee Sheeting to accommodate deeper bulkhead and higher grade separations.



Skywalk Railway Overpass – Enclosed skywalk overpass carries pedestrian traffic over railroad.



Big R Modular Bridges – available in HL-93 vehicular loading and custom options available to accommodate site-specific requirements.



Retaining Walls – Bin-Wall is a lightweight steel that is easily assembled to fully enclose fill material for a solid wall solution.

Hard Armor Solutions

ArmorFlex®

ArmorFlex® provides an engineered alternative to traditional channel protection methods, such as riprap and cast-in-place concrete, for railway drainage and erosion control applications. This flexible, interlocking matrix of dry-cast concrete blocks is connected by a series of cables, allowing for the placement of large, continuous mats that provide durable, reliable erosion protection. ArmorFlex systems combine the strength and stability of hard armor with porosity, flexibility, and the potential for vegetation establishment and habitat enhancement. For railway applications, ArmorFlex can help protect drainage channels, embankments, culvert outlets, and other areas vulnerable to erosion from concentrated stormwater flows, helping maintain drainage performance and protect critical rail infrastructure.



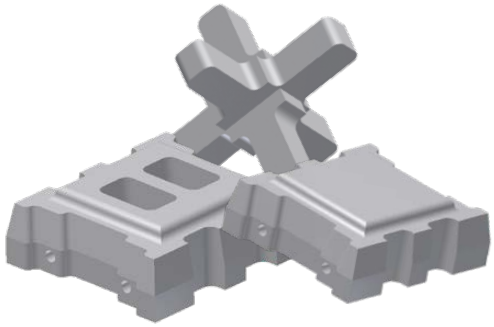
ArmorFlex is easy to install and has a low life-cycle cost when compared to other permanent solutions.

A-Jacks®

A-Jacks® provide an effective solution for scour protection and erosion control around bridge piers, abutments, and other structures supporting railway infrastructure. Their engineered, interlocking concrete elements help dissipate flow energy, stabilize streambeds, and resist the movement of soil and sediment caused by high-velocity water and fluctuating flow conditions. A-Jacks systems can be used to help protect critical structural foundations from scour, particularly at rail bridges and stream crossings where erosion can compromise long-term stability. Their open structure also allows water to flow through the system while helping maintain a stable protective layer in challenging hydraulic environments.



A-Jacks® articulating concrete blocks are an excellent solution for scour protection around piers and bridge structures.



Collector Pans

Effective Pollution Control

Contech Collector Pans™ are modular systems of steel pans and drains easily installed on existing or new tracks to catch spilled or leaking fuel, oils, greases and other pollutants.

At hundreds of installations within the railroad and manufacturing industries, Collector Pans prevent liquid pollution at fueling stations, ready tracks, tank car loading and unloading areas, washing facilities – anywhere oils, chemicals and other pollutants can drip from standing cars and find their way into sewers and streams.

Long Service Life

Contech's galvanized or black steel Collector Pans are completely reusable when yard layouts, fueling facilities or ready tracks change. And if an accident damages one, its modular construction means that only the damaged section needs to be replaced.

Coated and stainless steel pans are available by request.

Easy Field Installation with Minimal Downtime

No special installation skills are needed. A competent foreman, welder and four or five unskilled laborers can easily install a system. It involves only a minimal amount of track downtime contrasted with the installation of concrete aprons – which require weeks of expensive and wasted time.

Customized Solutions

Contech has several standard collection pan configurations that you can choose from to meet your needs and your budget. We also custom fabricate to your specifically engineered and designed containment needs.

Contech supplies Collector Pans to all of the U.S. Class I railroads and numerous industrial customers. We've provided custom pan configurations to the likes of BNSF and Union Pacific Railroads and British Petroleum (BP) and can provide customized solutions to fit your site requirements.



Collector Pans – Customized Type 2 Collector Pans for a refueling station.



Collector Pans – Provide the ideal solution to control spills at fueling stations.



Contech Collector Pans can be customized to meet site-specific requirements.

Drainage Solutions

Corrugated Metal Pipe (CMP)

Contech offers a comprehensive range of CMP solutions for railway culverts, storm sewers, and conduits, providing durable, reliable drainage to help protect track beds and embankments. With more than 100 years of industry experience, Contech manufactures annular corrugated pipe, HEL-COR®, and ULTRA FLO® (Manning's n = 0.012) in galvanized, Aluminized Type 2 (ALT2), polymer-coated steel, and aluminum, to exacting standards, including applicable AREMA requirements. Smooth Cor™ combines a corrugated steel exterior with a hydraulically smooth liner, offering an effective alternative to reinforced concrete pipe, particularly in weak soils and on steep slopes.

Features include:

- Lightweight, easy handling with fast, economical installation
- Superior strength to weight ratio
- Diameters to 144" with lengths of up to 48' and more
- Round and pipe arch shapes



Contech CMP – Provides fast, economical installation.

EXPECTED CMP SERVICE LIFE

CMP Material	Expected Pipe Service Life	Site Environmental Conditions	Max FHWA Abrasion Level[1]
Galvanized CSP	25 - 50 Years	$6.0 \leq pH \leq 10.0$ $2000 \leq r \leq 8000$ (ohm-cm)	Level #2
Aluminized Steel Type 2 CSP	Min. 75 Years[2]	$5.0 \leq pH \leq 9.0$ $r > 1500$ ohm-cm	Level #2
Polymer-Coated CSP	Min. 100 Years	$5.0 \leq pH \leq 9.0$ $r > 750$ ohm-cm	Level #3
	Min. 75 Years	$4.0 \leq pH \leq 9.0$ $r > 750$ ohm-cm	
	Min. 50 Years	$3.0 \leq pH \leq 12.0$ $r > 250$ ohm-cm	
Aluminum Alloy	Min. 100 Years	$4.0 \leq pH \leq 9.0$ $r > 500$ ohm-cm	Levels #1,#2 or #3

NOTES: [1] Refer to Table 9.3 for definition of FHWA Abrasion Levels.
[2] Under certain circumstances an expected service life of 100 years can be attained.



Use Contech Deck Drain to collect and transport water from the surface of the rail road bridge.

Contech Deck Drain

Railroad bridges are constructed with ballast instead of pavement, and Deck Drain is used to collect and transport water off of the bridge.

- Corrugations – 2 ⅔" X ½"
- Gage (thickness) – 14 or 12
- Material – galvanized or galvanized with asphalt coating
- Diameter – 8" half round

DuroMaxx® SRPE

DuroMaxx® offers the strength of steel and the durability of pressure rated Polyethylene Resin (PE). With a smooth inner wall (Manning's n = 0.012) for outstanding hydraulics, DuroMaxx provides the properties you can count on for long term service and performance in the most demanding environments.

Features include:

- Superior durability
- High strength steel reinforcement
- Light weight, fast installations
- Diameters to 120"



DuroMaxx® Steel Reinforced Polyethylene (SRPE) pipe.

* ALT2 coating not available for 8 gage riveted pipe.

Drainage Solutions

A-2000™

With the increasing demands on our drainage and storm sewer systems, products designed and proven to provide the best performance over the project life cycle are needed. A-2000™ PVC drainage pipe offers all of the initial cost advantages associated with thermoplastic pipe when compared with RCP but without the performance limitations of corrugated M294 HDPE pipe.

Features include:

- Superior pipe stiffness
- Lightweight, easy handling
- Standard watertight joints



A-2000™ PVC Pipe with Contech Collector Pans provide perfect solution for effectively containing waste and other harmful pollutants.

Stormwater Management:

Treatment

Meet NPDES stormwater and SPCC requirements, reduce risks and avoid costly fines with our expansive product line of stormwater treatment products.

Filterra® Bioretention System is an engineered biofiltration device with components that make it similar to bioretention in pollutant removal and application, but has been optimized for high volume/flow treatment in a compact system. Its small footprint allows Filterra to be integrated into landscaped areas, parking lots, and streets on highly developed sites.

The Stormwater Management StormFilter® – Meets the most stringent regulatory requirements using a variety of media that can target fine particulates, heavy metals, and oil and grease. Siphon-actuated filter surface cleaning extends maintenance intervals.

Jellyfish® Filter – A stormwater quality treatment technology featuring high surface area and high flow rate membrane filtration at low driving head.

CDS®, Vortechs®, VortSentry® HS – Widely accepted for effective solids removal. Especially efficient on gross solids, trash, and debris.



Filterra® offers a cost-effective stormwater treatment system featuring easy installation and simple maintenance at rail and intermodal yards.

Detention/Infiltration

Control and reduce runoff from maintenance, service, washing, fueling and inspection areas with our underground stormwater detention and infiltration systems. With a variety of materials such as CMP, plastic, and concrete, our suite of products provides economical storage options that can accommodate any footprint need.



CMP Detention Systems are customizable and may be designed for heavy loading and high maximum cover.

Storm Sewer, Culvert & Bridge Repair

Contech can help assist with your efforts to acquire, improve or rehabilitate intermodal or rail facilities, including storm sewer, culvert and bridge repair. The option to slip line or repair existing storm sewers, culverts or bridges is more cost-effective and just as structurally effective as replacement. We offer a variety of rehabilitation solutions to fit your needs.

Corrugated Metal Pipe – HEL-COR®, ULTRA FLO® and Smooth Cor™

Restoration of failed or deteriorating pipe can be accomplished by relining with ULTRA FLO® or Smooth Cor™. Their low-wall profile can yield an inside diameter that approaches the original pipe, while the hydraulic capacity is improved. Contech's corrugated metal pipe is light weight and can be provided in custom lengths to meet individual site conditions, making the lining process easier.

DuroMaxx® SRPE Liner

DuroMaxx® steel reinforced polyethylene (SRPE) is designed with a smooth inner wall for outstanding hydraulic capacity, and provides the properties you can count on for long-term service and performance in the most demanding environments. By providing the strength of steel and the durability of plastic, DuroMaxx® is an optimal reline solution in many situations

Features include:

- Manning's "n" of .012 restores hydraulic capacity.
- Eliminates costly bypass operations as normal flow is maintained.
- Provides excellent durability and resistance to abrasion.
- Meets the joint tightness test requirements of ASTM D3212.



ULTRA FLO® corrugated metal pipe is often used to rehabilitate failing culverts and storm sewers.



HEL-COR® ALT2 CMP was used to reline an existing timber beam bridge to avoid lengthy track down time and allow for a full structural repair.



DuroMaxx® Steel Reinforced Polyethylene (SRPE) pipe is slip lined to provide a structural lining.

Extend Service Life of Aging Infrastructure

Tunnel Liner Plate

Contech Tunnel Liner Plate provides optimum stability and protection when constructing new utility tunnels, relining structures under highways and railroads, and lining vertical shafts. It offers the highest continuous ring stiffness and high compression joint strength. The 2-Flange Tunnel Liner Plate has effective stiffness that is more than double the stiffness of the same gage of 4-Flange Liner Plate.

Features include:

- Offering larger spans
- A different family of shapes



Contech Tunnel Liner Plate was used to fully restore this pedestrian underpass directly under a fully operational rail line.

Variety of Products for More Efficient Rehabilitation

	SPAN RANGE	PRODUCT	DESCRIPTION
DRAINAGE	18″ – 102″	ULTRA FLO®	Spiral rib aluminum, aluminized and polymer-coated steel pipe
	12″ – 144″	Corrugated Metal Pipe	Corrugated aluminized and polymer-coated steel and aluminum alloy helical and riveted pipe
	30″ – 120″	DuroMaxx®	Steel reinforced polyethylene pipe
SEWER	30″ – 120″	DuroMaxx®	Steel reinforced polyethylene pipe
STRUCTURES	4′ – 20′+	Tunnel Liner Plate	Steel and aluminum 2- flanged plate
	5′ – 23′+	ALSP MULTI-PLATE®	Aluminum structural plate Galvanized steel structural plate
	19′-5″ – 65′	SUPER SPAN™ SUPER-PLATE® BridgeCor®	Galvanized steel structural plate long spans Aluminum structural plate long spans Deep corrugation galvanized steel structural plate
	12′ – 102′	CON/SPAN® and BEBO®	Precast concrete arches



Contech can assist with your efforts to improve or rehabilitate intermodal or rail facilities, including components of tracks and surrounding infrastructure in yards and buildings.



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MANUFACTURING AMERICA'S INFRASTRUCTURE™

Contech® Engineered Solutions manufactures civil infrastructure products that add lasting value to every project.

We work alongside owners, engineers, and customers to provide guidance, design support, and installation assistance, helping you build with confidence.

We look forward to working with you on your next project.

PIPE SOLUTIONS

STORMWATER SOLUTIONS

STRUCTURE SOLUTIONS

For more information, we have representatives for all 50 states. Please call 800-338-1122 or visit www.conteches.com.

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