

# Super-Cor®

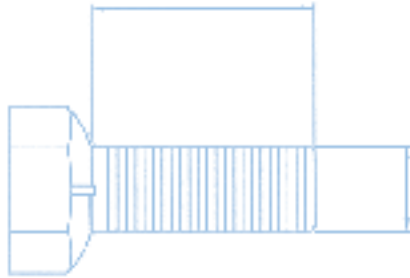


[www.atlanticcivil.com.au](http://www.atlanticcivil.com.au)

**Atlantic**  
Civil Products







# We Support You.

**Atlantic Civil Products has built a solid reputation delivering professional support and innovative, high-quality, corrugated metal products around the world.**

Atlantic Civil Products has a long history of creating innovative solutions in corrugated steel. Since 1939, Atlantic Civil Products has been engineering high-quality, durable corrugated steel products for major industries like transportation, hydro, mining and forestry. Today, Atlantic Civil Products is well poised to serve you through locations in Australia, North America, Europe and Asia. Our solutions come in a variety of sizes, ranging from culverts and sewers to tunnels, bridges, underpasses and stream enclosures.

Our reputation has been forged not only on the success of our competitively priced products, but also through the innovative engineering and reliable service we provide to our customers. Atlantic Civil Products' worldwide support includes project management, problem solving and field service. In keeping with Atlantic Civil Products' ongoing commitment to high standards, our Head Office Plant and our Engineering Department in Townsville, Queensland have been independently certified to ISO 9001.

Through our ongoing research and development programs, our engineers have found optimum solutions using our innovative Super•Cor® corrugated steel. We recommend that before you specify any of our Super•Cor products, take the opportunity to consult with an Atlantic Civil Products technical representative for advice and assistance on your project.

# Super•Cor®

As Atlantic Civil Products' revolutionary alternative to conventional bridges, Super•Cor represents our commitment to continued development in the field of corrugated metal structures.

Combining the advantages of lightweight construction with the superior strength and durability of galvanized steel, Super•Cor is the most internationally accepted, and widely used corrugation profile on the market.

## The sensible, economical choice for:

- Vehicle underpasses
- Bridges
- Railway underpasses
- Box culverts
- Underground storage
- Stream enclosures/crossings
- Storage magazines
- Fauna underpasses
- Mine portals

## Superior Strength. Lightweight Construction.

Super•Cor's larger annular corrugations (381mm pitch and 140mm depth) provide nine times the stiffness of conventional structural plate. The lightweight, modular panels can be shipped easily and economically making it even more advantageous for remote locations.

## Easy Installation

Simply put, Super•Cor saves time and money in installation. The panels require significantly fewer bolts than conventional structural plates and can be assembled adjacent to the job site, then moved into place using relatively light equipment. And, if the road needs to be widened later, Super•Cor allows for easy extension with additional panels.



**Strong • Durable • Versatile**

## Versatile

Super•Cor's corrugation profile permits construction of the largest, longest and widest spans in a variety of configurations. Spans can exceed 25m with Atlantic Civil Products' proprietary features. Special shapes are also available, including Super•Cor reinforced box culverts in spans exceeding 15m with cover as shallow as 450mm.

## Durable

Super•Cor's heavy galvanized coating is metallurgically-bonded to the steel surface, providing extended service life. Super•Cor is supplied with a standard 1220g/m<sup>2</sup> coating. Properly designed and installed, Super•Cor structures will last over 100 years.

## Environmentally-Responsible

Most Super•Cor structures used for stream crossings are bottomless. These structure types, combined with lower-impact installation methods, virtually eliminate deliberate streambed interference.

## Maintenance-Free

Unlike conventional bridges, which frequently require substantial retrofits, properly-installed Super•Cor structures are relatively maintenance-free.

## Aesthetically-Pleasing

Once installed, Super•Cor becomes a naturally-appealing structure. The geometry of the corrugations both softens and reduces the intrusiveness traditionally associated with man-made structures in natural environments.

## ▼ IDEAL FOR REMOTE LOCATIONS

Mining companies take advantage of Atlantic Civil Products' technology to build some of the largest and most economical bridges in remote locations, such as this one in Western Australia.





**Ideal for many**

# Applications



**BIG ON MINING:** The world's largest engineered corrugated arch helps preserve Whitehorse Creek, Alberta, Canada.

## Mine Site Infrastructure

With achievable span widths of over 25m, many of the world's largest mine sites use Atlantic Civil Products' innovative Super•Cor for its light weight, superior strength, versatility, ease of installation and environmental friendliness. Super•Cor is perfect for use in many types of large-scale engineered structures, such as:

- Heavy haul road arches
- Rail underpasses
- Portals
- Stockpile tunnels
- Escape tunnels



**EMERGENCY MEASURES:** Super•Cor® saved time and money when a bridge washed out under Toronto, Ontario's busy Finch Avenue.

## Affordable Bridge Replacement

Replacing aging bridges presents unique challenges to traffic management and infrastructure budgets alike. Progressive engineers and specifiers are turning to Super•Cor for its ease of installation and sheer economics. Super•Cor's variety of shapes and profiles, along with its environmental friendliness, make it perfect for:

- Short and Medium Span Bridges
- Box Culverts
- Vehicle and Railway Underpasses
- Stream Enclosures/Crossings
- Grade Separations



**SAFER FOR EVERYONE:** Deer stroll across a newly-installed animal crossing in Europe.

## Animal-Friendly Crossings

On today's high-speed highways, motorists and wildlife can often find themselves on opposite sides of sudden and devastating encounters. The one thing they agree on, however, is that safety crossings made from Super•Cor provide low-cost, aesthetically pleasing and effective solutions for increased highway safety. Super•Cor is ideal for animal-friendly crossings like:

- Highway overpasses and underpasses
- Railway overpasses and underpasses

## Super•Cor is the logical choice.

Super•Cor structures are designed and manufactured in accordance with AASHTO and CHBDC standards and specifications.

### Durability

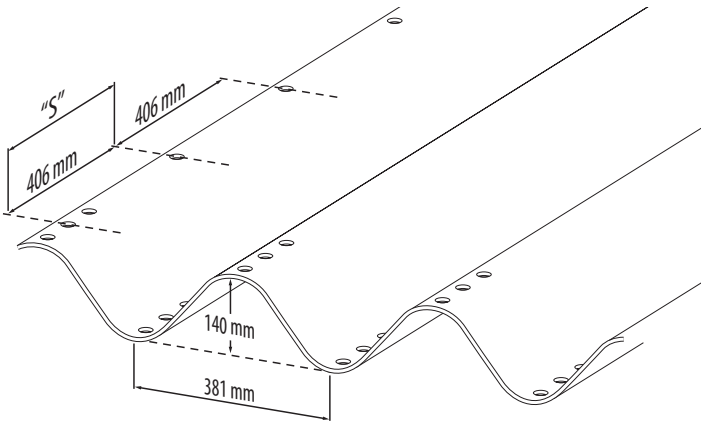
Properly designed structures will last 100-plus years.

### Handling

Lightweight sections are economical to ship, and easily handled by light equipment.

### Cost

Low installation and maintenance over the life cycle of the structure makes Super•Cor the economical choice.



## SPECIFICATIONS

Wall Thickness			Tangent				
Specified (mm)	Uncoated (T) (mm)	Area (mm <sup>2</sup> /mm)	Length (TL) (mm)	Angle(Δ) (degrees)	Moment of Inertia (mm <sup>4</sup> /mm)	Section Modulus (mm <sup>3</sup> /mm)	Radius of Gyration (mm)
3.5	3.42	4.784	110.8	49.75	11710.7	152.72	49.48
4.2	4.18	5.846	109.8	49.89	14332.5	186.05	49.52
4.8	4.67	6.536	109.2	49.99	16037.0	207.54	49.54
5.5	5.45	7.628	108.2	50.13	18740.1	241.38	49.57
6.3	6.23	8.716	107.2	50.28	21441.2	274.87	49.60
7.1	7.01	9.807	106.1	50.43	24124.5	308.24	49.64
8.1	8.00	11.06	104.9	50.62	27259.0	347.00	49.65

### Corrugation Profile: 381 mm x 140 mm



## FOOTER OPTIONS

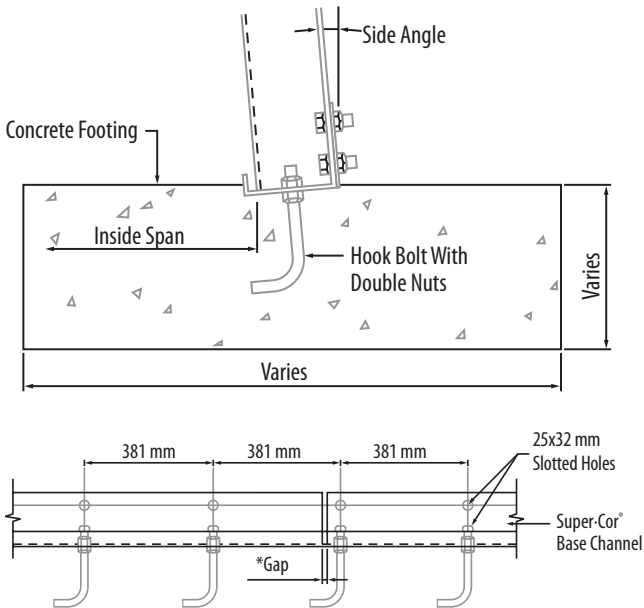
Super•Cor packages come with a variety of footer options to suit various sites:

- Precast or cast-in-place concrete footings – the most common footer type, in which a receiving angle is embedded in concrete.
- Steel footer pads – used as a time-saving alternative to concrete in sites with non-erodible stream beds. If the site permits, footings should be buried a minimum of

600mm below stream bed. Note: When footer pads are buried, the published end area of Super•Cor will be reduced.

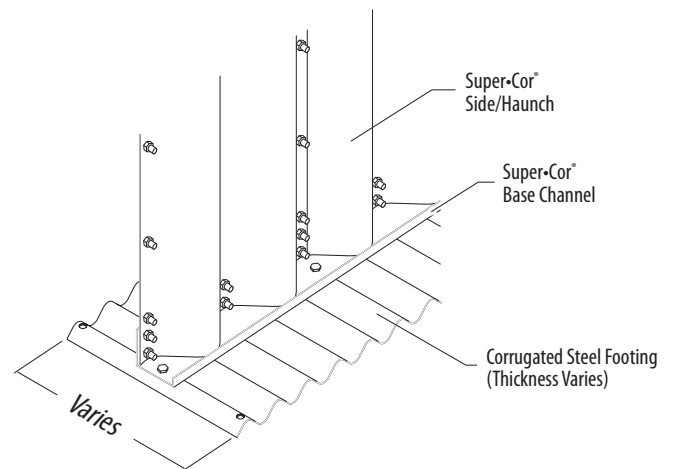
- Full steel invert – for applications in erodible stream beds requiring a corrugated steel floor or invert. To prevent undermining of the invert, we recommend the use of an optional toewall for the upstream and downstream ends.

### Concrete Footing



\*Note: Space base channel so that 381mm c/c spacing of slotted holes in long leg is maintained

### Corrugated Steel Footing



## HEADWALL OPTIONS

In addition to enhancing their appearance, well-designed end treatments are essential to the structural and hydraulic performance of Super•Cor.

Headwall options include:

- MSE wall systems with welded wire walls or concrete faces
- Concrete, cast-in-place or precast
- Welded wire gabion baskets
- Sheet Pile walls





# Super•Cor® Box

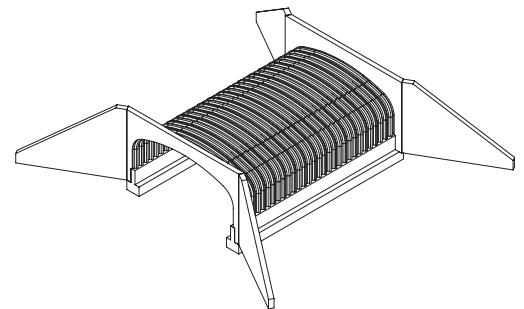
Super•Cor Boxes offer the perfect solution for long-span, low-rise situations with shallow cover.

Super•Cor Boxes combine the strength and cost advantages of Atlantic Civil Products' Super•Cor corrugation profile with a special, patented reinforcement along the length of the structure. The extra strength of this reinforcement permits designs exceeding 15m.



## Your complete solution.

From preliminary specifications and drawings through to project completion, Atlantic Civil Products is your single source for a comprehensive engineered package including the structure, footings, headwalls, wingwalls, fascia finishes and guardrail systems.



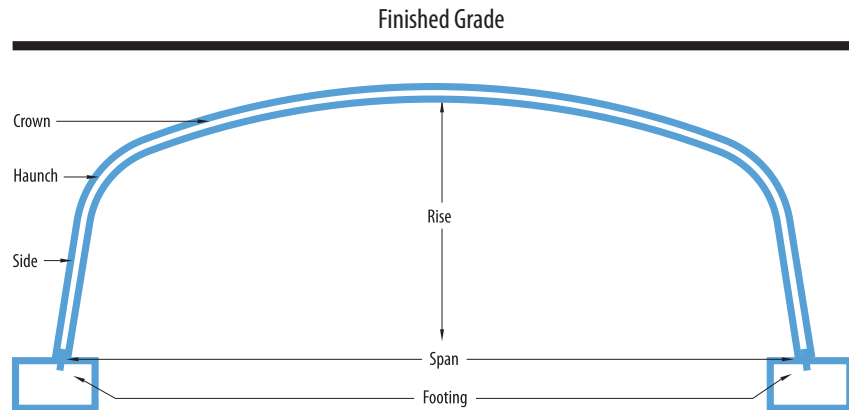
▼ **LOOKING GOOD:** As shown here and opposite, Super•Cor can be customized with many types of functional and attractive end treatments.



## Structural Cross Section

### Recommended Height of Cover

Limits: Minimum – 450 mm  
Maximum – 1500 mm



## Box Details

No.	Span (mm)	Rise (mm)	End Area (m <sup>2</sup> )	No.	Span (mm)	Rise (mm)	End Area (m <sup>2</sup> )
SC-1B	3170	1180	3.12	SC-33B	7405	1680	10.21
SC-2B	3550	1420	4.33	SC-34B	7800	1965	12.71
SC-3B	3840	1465	4.94	SC-35B	7945	2370	15.87
SC-4B	3965	2210	7.35	SC-36B	8575	1920	13.90
SC-5B	3865	1260	4.18	SC-37B	8605	2325	17.38
SC-6B	4105	1860	6.56	SC-38B	8635	2735	20.89
SC-7B	4210	1310	4.76	SC-39B	9145	1940	14.64
SC-8B	4735	1960	8.16	SC-40B	9225	2345	18.35
SC-9B	4550	1360	5.36	SC-41B	9310	2750	22.10
SC-10B	4890	1610	6.97	SC-42B	9810	2105	16.92
SC-11B	4860	2365	10.09	SC-43B	9865	2510	20.90
SC-12B	5155	2420	11.06	SC-44B	9920	2920	24.92
SC-13B	5215	1670	7.72	SC-45B	10460	2285	19.43
SC-14B	5360	2075	9.89	SC-46B	10485	2690	23.68
SC-15B	5320	1440	6.62	SC-47B	10515	3100	27.95
SC-16B	5445	2480	12.07	SC-48B	10895	2355	20.59
SC-17B	5655	1505	7.33	SC-49B	10940	2760	25.02
SC-18B	5955	2645	14.23	SC-50B	10990	3165	29.47
SC-19B	5895	1595	8.17	SC-51B	11645	2530	23.31
SC-20B	6165	1900	10.33	SC-52B	11700	2935	28.04
SC-21B	6235	2715	15.36	SC-53B	11750	3345	32.81
SC-22B	6320	1645	8.91	SC-54B	12270	2745	26.46
SC-23B	6480	1975	11.25	SC-55B	12290	3150	31.45
SC-24B	6495	2380	13.89	SC-56B	12315	3555	36.45
SC-25B	6645	1720	9.77	SC-57B	13028	2830	30.72
SC-26B	6970	1795	10.67	SC-58B	13050	3236	36.02
SC-27B	7000	2200	13.50	SC-59B	14092	3071	35.61
SC-28B	7025	2610	16.35	SC-60B	14111	3477	41.34
SC-29B	7290	1875	11.62	SC-61B	15020	3168	38.38
SC-30B	7300	2285	14.58	SC-62B	15038	3574	44.48
SC-31B	7310	2690	17.56	SC-63B	15579	3845	49.46
SC-32B	7315	3095	20.52	SC-64B	15748	3994	52.12

Larger sizes and other shapes available upon request. Measurements are to inside crest of corrugation.



# Super•Cor<sup>®</sup> Arch

Super•Cor Arches surpass the range of conventional plate arches with spans exceeding 25m. They can be installed with minimal environmental impact.

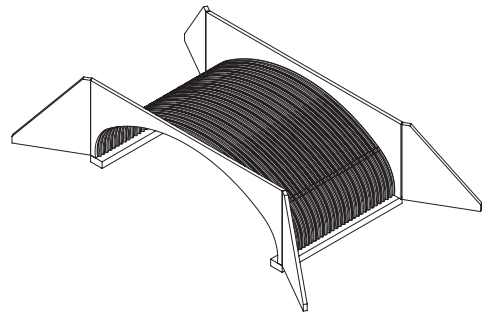
High-profile Super•Cor arches are ideal for highway grade separations or in applications requiring large end areas or wider spans.

**SAVE TIME AND MONEY:** Super•Cor structures erect quickly with less labour and transportation costs. In some cases, vital 24-hour traffic is not even interrupted.



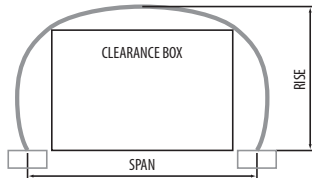
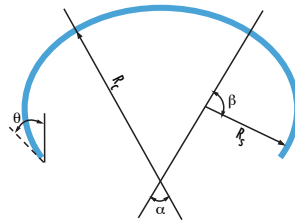
## Your complete solution.

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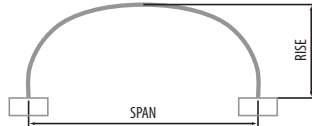


## Arch Details

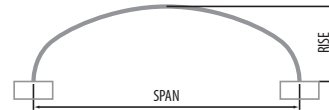
Typical Arch Profile



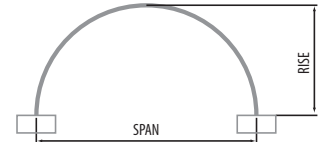
High Profile Arch



Medium Profile Arch



Low Profile Arch



Standard Arch

Arch No.	Max. Span (mm)	Bottom Span (mm)	Total Rise (mm)	End Area (m <sup>2</sup> )	Total S	Arch No.	Max. Span (mm)	Bottom Span (mm)	Total Rise (mm)	End Area (m <sup>2</sup> )	Total S
<b>SCA1</b>	6990	6990	3495	19.20	27	SCA40	13500	13479	4612	50.12	45
<b>SCA2</b>	7250	7250	3625	20.60	28	<b>SCA41</b>	13980	13980	6985	76.70	54
<b>SCA3</b>	7510	7510	3755	22.10	29	SCA42	14000	13958	4877	54.88	47
<b>SCA4</b>	7640	7640	3820	23.70	30	SCA43	14000	13872	6543	75.91	54
SCA5	8000	7994	3594	23.53	30	SCA44	14000	13641	7009	83.57	57
<b>SCA6</b>	8030	8030	4015	25.30	31	SCA45	14500	14433	5150	59.87	49
<b>SCA7</b>	8290	8290	4140	27.00	32	SCA46	15000	14960	5232	62.15	50
<b>SCA8</b>	8550	8550	4270	28.70	33	SCA47	15000	14780	7022	87.32	58
<b>SCA9</b>	8800	8800	4400	30.40	34	SCA48	15000	14663	7351	92.90	60
SCA10	9000	8983	3760	28.15	33	<b>SCA49</b>	15010	15010	7505	88.50	58
SCA11	9000	8724	5168	40.67	40	SCA50	15500	15441	5520	67.55	52
<b>SCA12</b>	9060	9060	4530	32.20	35	<b>SCA51</b>	15530	15530	7765	94.70	60
<b>SCA13</b>	9320	9320	4660	34.10	36	SCA52	16000	15942	4922	64.47	52
SCA14	9500	9456	3956	31.54	35	SCA53	16000	15870	6666	89.41	59
<b>SCA15</b>	9580	9580	4790	36.00	37	SCA54	16000	15543	7982	111.11	66
<b>SCA16</b>	9840	9840	4920	38.00	38	<b>SCA55</b>	16050	16050	8025	101.10	62
SCA17	10000	9967	3961	33.14	36	SCA56	16500	16406	5168	69.78	54
SCA18	10000	9740	4547	38.93	39	<b>SCA57</b>	16570	16570	8280	107.70	64
SCA19	10000	9690	5371	47.06	43	SCA58	17000	16930	5224	72.02	55
<b>SCA20</b>	10100	10100	5045	40.00	39	SCA59	17000	16909	6720	94.96	61
<b>SCA21</b>	10360	10360	5175	42.10	40	SCA60	17000	16478	8483	124.98	70
SCA22	10500	10476	3974	34.75	37	<b>SCA61</b>	17220	17220	8610	114.60	66
<b>SCA23</b>	10870	10870	5435	46.40	42	SCA62	17500	17451	5285	74.29	56
SCA24	11000	10947	4193	38.53	39	<b>SCA63</b>	17600	17600	8800	121.60	68
SCA25	11000	10697	4776	44.86	42	SCA64	18000	17921	5547	80.14	58
SCA26	11000	10642	5864	56.27	47	SCA65	18000	17886	6999	104.17	64
<b>SCA27</b>	11390	11390	5695	50.90	44	<b>SCA66</b>	18110	18110	9068	128.90	70
SCA28	11500	11462	4221	40.26	40	SCA67	18500	18447	5617	82.59	59
<b>SCA29</b>	11910	11910	5955	55.70	46	SCA68	19000	18912	5889	88.82	61
SCA30	12000	11974	4259	42.02	41	SCA69	19000	18926	7099	110.10	66
SCA31	12000	11781	5639	57.10	47	<b>SCA70</b>	19150	19150	9576	155.81	74
SCA32	12000	11612	6113	63.68	50	SCA71	19500	19448	5968	91.46	62
<b>SCA33</b>	12430	12430	6210	60.60	48	<b>SCA74</b>	20190	20190	10083	160.00	78
SCA34	12500	12447	4501	46.26	43	<b>SCA76</b>	20700	20700	10360	168.30	80
<b>SCA35</b>	12940	12940	6470	65.80	50	<b>SCA78</b>	21210	21210	10620	176.80	82
SCA36	13000	12964	4553	48.18	44	<b>SCA82</b>	22250	22250	11125	194.50	86
SCA37	13000	12745	5890	64.39	50	<b>SCA86</b>	22760	22760	11380	203.60	88
SCA38	13000	12662	6460	72.07	53	<b>SCA90</b>	24000	24000	12040	227.40	93
<b>SCA39</b>	13460	13460	6730	71.10	52	<b>SCA94</b>	25000	25000	12500	245.40	96

Note: All dimensions are to inside crest of steel. 114mm edge distance of steel is included in side arc length and angle. **Structure numbers in bold denotes single radius arch.** Other sizes and plate configurations are available upon request.



# Super•Cor® Round

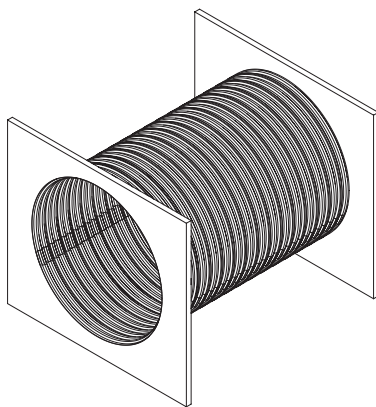
Super•Cor Round structures permit construction of dramatically larger diameters than was previously possible with conventional structural plate pipe configurations.



Super•Cor is the obvious choice for remote locations where concrete is more expensive or just not accessible as well as areas with poor foundations. This common and very versatile shape is frequently chosen for culverts, sewers and sub-drains, but it can also be used for storage bins, access ways, tunnels, bridges, and storm water retention/detention systems.

◀ **THE STRONGEST:** In mine sites around the world, Super•Cor is used under huge stock piles.

## Round Details



\*S = 406mm measured along the circumference.  
 \*\*Other sizes available upon request.  
 Measurements are to inside crest of corrugation.

Pipe No.	Diameter (mm)	End Area (mm <sup>2</sup> )	Total S*
SC66R	8400	55.4	66
SC68R	8650	58.7	68
SC70R	8910	62.3	70
SC72R	9170	66.0	72
SC74R	9430	69.8	74
SC76R	9690	73.7	76
SC78R	9950	77.7	78
SC80R	10200	81.7	80
SC82R	10460	85.9	82
SC84R	10720	90.2	84
SC86R	10980	94.6	86
SC88R	11240	99.2	88
SC90R	11500	103.8	90
SC94R	12020	113.4	94
SC98R	12530	123.3	98
SC102R	13050	133.7	102
SC106R	13570	144.6	106
SC110R	14080	155.7	110
SC114R	14600	167.4	114
SC118R	15120	179.5	118
SC122R	15640	192.1	122



We support all of our products with professional engineering, project consultation, innovative solutions and installation expertise. In short, we're always ready to provide assistance and recommendations for any project using Atlantic Civil Products.

# Design and Installation

Atlantic Civil Products' reputation for excellence extends well beyond developing innovative, superior steel products.





## Installation

Super•Cor® structures distribute superimposed loads to the surrounding ‘engineered’ backfill, so it is essential to use care during installation and backfilling to ensure proper performance. The following guidelines will help ensure a successful project.

## Excavation

Trench excavation will vary, depending on the nature of the in situ material. It is necessary to provide an excavated area that ensures adequate distance from soils with questionable structural integrity. If the native soil is stable, excavate only that area required to provide minimum bedding and enough room for compaction equipment to manoeuvre. For stream crossing applications, local authorities will impose guidelines for construction activity.

## Foundations

Super•Cor structures are flexible and can accommodate some differential settlement without distress. It is important, nevertheless, to minimize differential settlement by removing and replacing poor foundation material, or by using a pile foundation. Preparation should be confined to minimum, but practical, widths and should result in a uniform base for the structure. A bedding of loose material will provide a slight cushion and the bedding may be flat or shaped, depending on the structure configuration and construction methods being used. It is essential that all corrugations be filled.

## Assembly

A Super•Cor structure arrives at the job site in bundles curved to the proper radius. Included are bolts and any other special hardware that may be required, instructions and a diagram listing all components. Assembly is easy, requiring relatively simple tools. Correct lapping, bolt-tightening and shape-monitoring are all important to achieve the correct design dimensions. Your Atlantic Civil Products representative can provide information and assistance to those unfamiliar with structural plate assembly.

## Backfill

Super•Cor structures require a stable, engineered backfill to retain their shape and structural integrity. The quality of the backfill envelope depends on the choice of material, placement of backfill, and compaction of the envelope. Local engineering departments normally have specifications detailing suitable backfill material for flexible structures. However, there is no substitute for an examination by a geotechnical engineer. A well-graded, free-draining granular backfill is preferred.

## Inspection

Inspection should be performed on a full-time basis by qualified personnel. Backfill is placed in a balanced manner in 150mm to 200mm lifts for the entire backfill envelope. Compaction testing is required to ensure that backfill material is compacted to the required density. It is a good idea to assess the compaction equipment and have its use approved by the geotechnical engineer or qualified inspector.

## End Finishes

Special attention must be paid to beveled or skewed ends. Incomplete structural rings must be reinforced with steel or concrete (or tied back) to maintain structural integrity. Exercise caution when placing backfill around them to avoid distortion.

Standard End Finishes are:

- Squared
- Beveled
- Partially-beveled
- Skewed

## PRODUCTS AND SERVICES

- Super-Cor®
- Bolt-A-Bin®
- Multiplate™
- Super Span™
- Dur-A-Span®
- Atlantic Wire Walls
- Atlantic Precast Walls
- Modular Bridges
- Bridge Decking
- Box Culverts
- Geotextiles
- Guardrail Systems
- Helcor Pipe™
  - Galvanized
  - Aluminized Steel Type II
  - Polymer Laminated
- Buffa Tanks™
- Storm Water Detention
- Hi-Flo Pipe™
- Nestable Pipe
- Corrugated Polyethylene Pipe
- Steel Sheet Piling
- Hot Dip Galvanizing

We offer engineering expertise and support on all of the above products.



### OFFICE LOCATIONS

#### Head Office:

Townsville  
13 Industrial Avenue  
Bohle QLD 4818 Australia  
Phone (07) 4789 6700  
Fax (07) 4774 6958

#### Western Australia

Sales & Service  
Phone (08) 9923 3422  
Fax (08) 9923 3437

#### Southern Region

Sales & Service  
Phone (02) 9522 9011  
Fax (02) 9522 7136

### THE AIL GROUP OF COMPANIES



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please visit **[www.atlanticcivil.com.au](http://www.atlanticcivil.com.au)** for contact information.

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OR EMAIL [SALES@ATLANTICCIVIL.COM.AU](mailto:SALES@ATLANTICCIVIL.COM.AU)