Structural Plate

Tim Miller - ConTech Engineered Solutions
Structural Plate
85 years of use in critical highway applications
Structural Plate Material

MULTIPLATE | SUPERSPAN BRIDGECOR

STEEL

ALUMINUM STRUCTURAL PLATE ALUMINUM BOX CULVERT

ALUMINUM

ALUMINUM
# Structural Plate Shapes

<table>
<thead>
<tr>
<th>Shapes</th>
<th>Sizes = Span x Rise</th>
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<tbody>
<tr>
<td>Round</td>
<td>5’ to 50’-6”</td>
</tr>
<tr>
<td>Vertical Ellipse</td>
<td>4’-8” x 5’-2” to 25’ x 27’-8”</td>
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<tr>
<td>Underpass</td>
<td>12’-2” x 11’-0” to 20’-4” x 17’-9”</td>
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<tr>
<td>Pipe-Arch</td>
<td>6’-1” x 4’-7” to 20’-7” x 13’-2”</td>
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<tr>
<td>Horizontal Ellipse</td>
<td>7’-4” x 5’-6” to 14’-11” x 11’-2”</td>
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<tr>
<td>Arch (single radius)</td>
<td>6’ x 1’-10” to 54’-4” x 27’-2”</td>
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<tr>
<td>Arch (2-radius)</td>
<td>18’-5” x 8’-4” to 50’-7” x 19’-11”</td>
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<tr>
<td>Low-Profile Arch*</td>
<td>19’-5” x 6’-9” to 45’-0” x 18’-8”</td>
</tr>
<tr>
<td>High-Profile *</td>
<td>20’-1” x 9’-1” to 35’-4” x 20’-0”</td>
</tr>
<tr>
<td>Horizontal Ellipse</td>
<td>19’-4” x 12’-9” to 37’-2” x 22’-2”</td>
</tr>
<tr>
<td>Pear-Arch</td>
<td>23’-11” x 23’-4” to 30’-4” x 25’-10”</td>
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<tr>
<td>Pear</td>
<td>23’-8” x 25’-5” to 29’-11” x 31’-3”</td>
</tr>
<tr>
<td>Box Culvert</td>
<td>8’-9” x 2’-6” to 35’-3” x 13’-7”</td>
</tr>
<tr>
<td>Elliptical/Circular Arch **</td>
<td>12’ to 102’</td>
</tr>
<tr>
<td>H-20 Bridge **</td>
<td>Pedestrian ** spans up to 300’</td>
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</tbody>
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Durability - Galvanizing Steel PLATE

Galvanized Steel MULTI-PLATE requires a pH between 6 – 10 and resistivity between 2000 – 8000 ohm-cm for a minimum 50 year design life.
5052 Aluminum Alloy Structural Plate requires a pH between 4 – 9 and resistivity above 500 ohm-cm for a minimum 75 year design life with clean granular backfill material.
NCSPA Website Design Life Calculator

https://ncspa.org/

Information to Enter
- Life Expectancy
- PH and Resistivity
- Open Bottom Structure
- Asphalt Coating
- Concrete paved invert
Freight Economy
Multiplate Installation

01/10/2005
Aluminum Installation
Preassemble In Shop or Out of Stream
Backfill with aggregate to proper density

Backfill with clean aggregate to proper density. AASHTO A-1, A-2-4, A-2-5, A-3 aggregate. Compact symmetrically on each side. 8” – 10” loose lifts compacted to a minimum 90% density per AASHTO T180.
Plate Extensions
Invert Paving

Depth of corrugation
1/2", 1", or 2"

4" Concrete Pad

Steel fabric reinforcement
No. 6 gauge wire on 6" centers

1/2" C Stud or angle, 2-1/2" long welded to crest of corrugation

Typical Section

Section A-A
Reline, Rehab, Liner Plate

PLATE

PRECAST

TUNNEL LINER PLATE
Bridge Reline
Bridge Reline
Plate Strength 120’ cover
Buried Bridge

Goldcorp Wharf Mine Highway Underpass
Black Hills, SD
FMG Services - Civil, Geotechnical, Surveying Construction Testing