

HDPE/PP 12” Minimum Cover - AASHTO LRFD

The 2025 AASHTO Bridge Committee approved a revision to the LRFD Bridge Design and Construction Specifications updating minimum cover requirements to 12 inches for thermoplastic pipes under HL-93 highway live loads up to 42” diameter. The decision to permit a reduction in the required cover was based on technical research and was approved by all 50 state DOTs.

A recent study at Ohio University tested 36- and 42-inch diameter pipes under heavy cyclic loading with 12 inches of cover from the top of pipe to the bottom of intermediate asphalt course, consistent with industry recommendations for both HDPE and PP corrugated pipe. The results demonstrated that pavement strain and pipe deflection remained well within AASHTO’s 5% design limits after 80,000 loading cycles, across various pipe materials and temperatures.

Table 12.6.6.3-1 in the AASHTO LRFD Bridge Design Specifications, Section 12 reflects this approval.

Type	Condition	Minimum Cover*
Corrugated Metal Pipe	-	$S/8 > 12.0$ in
Spiral Rib Metal Pipe	Steel Conduit	$S/4 > 12.0$ in
	Aluminum Conduit where $S < 48.0$ in.	$S/2 > 12.0$ in
	Aluminum Conduit where $S > 48.0$ in.	$S/2.75 > 12.0$ in
Structural Plate Pipe Structures	-	$S/8 > 12.0$ in
Long-Span Structural Plate Pipe Structures	-	Refer to Table 12.8.3.1.1-1
Structural Plate Box Structures	-	1.4 ft., as specified in Article 12.9.1 See Article 12.8.9.4
Deep Corrugated Structural Plate Structress	-	See Article 12.8.9.4
Fiberglass Pipe	-	12.0 in.
Thermoplastic Pipe	Under unpaved areas	$ID/8 > 12.0$ in
	Under paved roads, Pipe ID < 42.0 in	12.0 in.
	Under paved roads, Pipe ID > 42.0 in	$ID/2 > 24.0$ in
Steel Reinforced Thermoplastic Culverts	-	$S/58 > 12.0$ in
Minimum cover taken from top of rigid pavement or bottom of flexible pavement		
Reinforced Concrete Pipe	Under unpaved areas or top of flexible pavement	$Bc/8$ or $B'c/8$, whichever is greater, > 12.0 in
Reinforced Concrete Pipe	Under bottom of rigid pavement	9.0 in

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