

CarbonArmor® & ArmorLock® Technical Specifications

Cured Composite Design Properties ^(1,2,3)	
Property	Design Value
Tensile Strength	98 ksi
Tensile Modulus	9,150 ksi
Elongation at Break	1.07%
Tensile Strength per Inch Width	6.37 k/in
Laminate Thickness	0.065 in
CarbonArmor Strap Width	7.25 in
ArmorLock Strap Width	3.00 in

ArmorLock Bracket (Optional):

$\frac{3}{16}$ " ASTM A36 bent plate
1.95" x 2.50" x 7.00" long with holes
for bracket hardware
Electrozinc plated per ASTM B633
(8) #9 x 1- $\frac{1}{2}$ " wood screws

- (1) When laminated with Foundation Supportworks Saturating Resin – 2500.
- (2) Reported values are those recommended for use in design and have already been reduced from the maximum values observed in laboratory testing.
- (3) Test procedure in accordance with ASTM D3039.

Note: Safety Data Sheets (SDS) for the CarbonArmor carbon fabric, both components of the epoxy liquid, and both components of the epoxy paste are available upon request.



Rendering of the CarbonArmor® system installed within a basement

Spacing Recommendations

Spacing Recommendations for Bowing 8" CMU Walls (ft) ^(1,2,3,5,7)					Spacing Recommendations for Bowing 8" Poured Concrete Walls (ft) ^(1,2,3,5,6,7)			
Backfill Elevation Below Top of Wall (ft)	Wall Height (ft) ⁽⁴⁾				Backfill Elevation Below Top of Wall (ft)	Wall Height (ft) ⁽⁴⁾		
	11 Courses 7"-4"	12 Courses 8"-0"	13 Courses 8"-8"	14 Courses 9"-4"		8	9	10
Full Backfill	4.67	4.00	2.67	2.00	Full Backfill	5.00	4.50	2.50
1	4.67	4.67	4.00	2.67	1	5.00	5.00	3.50
2	4.67	4.67	4.67	4.00	2	5.00	5.00	5.00
3	4.67	4.67	4.67	4.67	3	5.00	5.00	5.00
4	4.67	4.67	4.67	4.67	4	5.00	5.00	5.00
5	4.67	4.67	4.67	4.67	5	5.00	5.00	5.00

Spacing Recommendations for Bowing 10" CMU Walls (ft) ^(1,2,3,5,7)					Spacing Recommendations for Bowing 10" Poured Concrete Walls (ft) ^(1,2,3,5,6,7)			
Backfill Elevation Below Top of Wall (ft)	Wall Height (ft) ⁽⁴⁾				Backfill Elevation Below Top of Wall (ft)	Wall Height (ft) ⁽⁴⁾		
	11 Courses 7"-4"	12 Courses 8"-0"	13 Courses 8"-8"	14 Courses 9"-4"		8	9	10
Full Backfill	4.67	4.67	4.00	2.67	Full Backfill	5.00	5.00	3.50
1	4.67	4.67	4.67	4.00	1	5.00	5.00	5.00
2	4.67	4.67	4.67	4.67	2	5.00	5.00	5.00
3	4.67	4.67	4.67	4.67	3	5.00	5.00	5.00
4	4.67	4.67	4.67	4.67	4	5.00	5.00	5.00
5	4.67	4.67	4.67	4.67	5	5.00	5.00	5.00

- (1) Spacing tables have been developed with consideration for the recommendations of ACI 440, design calculations, and current industry state of practice. The carbon fiber straps are to be installed per the installation instructions and must be the full height of the wall.
- (2) Listed spacing is center-to-center. Maximum recommended spacing from corners is 3 feet but should also not exceed the spacing of the interior straps.
- (3) Spacing could be less than listed in the above charts based on the condition of the wall and severity of the displacement.
- (4) Listed wall heights include the full height from top of footing to top of wall. Spacing recommendations assume the bottom 4 inches of the wall are restrained by an interior concrete slab.
- (5) Recommended spacing assumes the backfill soils exert an equivalent fluid pressure (EFP) equal to 60 psf/ft. The design professional may choose to consider alternate EFP values based on project-specific conditions.
- (6) Poured concrete walls most often show signs of distress by leaning instead of bowing. Leaning concrete walls are often intact and typically show maximum inward movement at the top of the wall. Leaning concrete walls may not benefit from carbon fiber strengthening and should consider alternate design recommendations to address the deficient connection at the top of the wall.
- (7) Because variations in building design and construction materials are common, CarbonArmor® applications should be reviewed by a qualified professional.