

RVE

River Valley Engineering, Inc.

1526 Whitlock Dr., Alma, AR 72921
(479) 410-2208

Project No. : 2025-1140 Subject : Longview Pickleball Cor Page :
Calc. by : JPL Date : 9/4/2025 Rev : 0

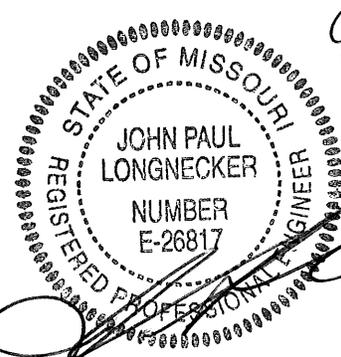
SHADE STRUCTURE DESIGN

LONGVIEW PICKLEBALL COMPLEX

STRUCTURE # 2

LEE'S SUMMIT, MISSOURI

9/4/25



STATE OF MISSOURI
JOHN PAUL
LONGNECKER
REGISTERED PROFESSIONAL ENGINEER
NUMBER
E-26817



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Output: Wind Loading

Uniform Loadings With Fabric

qh = .00256*Kz*Kzt*Kd*V^2	=	14.98 psf	See Page 1 For Values
P = qh*G*Cn*SVf*SF*f	=	8.15 * Cn	psf

Downforce Effect
Pushing on Top
Surface (+)
Case A

Uplift Effect
Pulling on Top
Surface (-)
Case B

Front	Pw	8.9650852 psf	-6.520062 psf
Back	Pw	0.8150077 psf	-0.815008 psf
Parallel	Pw	4.0750387 psf	-4.075039 psf
Minimum Load	Pw	10 psf	

Uniform Loadings Without Fabric (Load on Post)

qh = .00256*Kz*Kzt*Kd*V^2	=	24.46 psf	See Page 1 For Values
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Snow Loadings with Fabric

Sloped Roof Snow Loads on Structure Ps=0.7*Ce*Ct*Is*Pg*Cs		0.00 psf
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Load Combinations

- | | |
|---|----------------|
| 1 | D |
| 2 | D + Lr |
| 3 | D + .6W or .7E |
| 4 | .6D + .6W |
| 5 | .6D + .7E |

Project No. : 2025-1140 Subject : Longview Pickleball Complex Page :
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Design of Shallow Pier

Input

Location	Longview Pickleball Complex #2		
Axial Load on Pier	1.6 kips		
Uplift Load on Pier	0.74 kips		
Lateral Load on Pier	0.38 kips		
Diameter or Width of Pier in Ground	3 ft		
Is Pier Square	N		
Height of Load Above Grade	10.792 ft	Equivalent Moment =	4.10096 ft-kips
Bearing Capacity of Soil under Pier	1.7 ksf		4802.4
Skin Friction Capacity of Pier	100 psf		
Allowable Average Soil Stress for Lateral, S1	500 psf ==	Avg For for Sand and Clay due to Wind	1750 psf
Weight of Pier Cap	0 lbs		
Height of Pier Out of Ground	0 ft		
Depth of Water Table	20 ft		

Note: For S1:
See Gaylord and Gaylord Lateral Stability of Poles

For Skin Friction:
Use 200 psf for all soils. Unless value is known

Output

Area of Pier	7.07 sqft		
Required Embedment Depth of Pier	2.99 ft	35.89 in	
Depth of Pier to Use	5.00 ft	60.00 in	
Weight of Pier	3.17 kip		
Bearing Stress on Pier	0.38 kip	O.K.	
Uplift Capacity of Pier	6.62 kip	O.K.	
Lateral Capacity Using Brohms Method	7.50 kip	O.K.	
Minimum Vertical Reinforcement	5.09 sqin	11.6	#6 Vertical Bars
Diameter of Vert. Reinforcement	2.333 ft		
Maximum Tension on Reinforcement	0.586 kip		
Maximum Tension Stress on Reinforcement	1.332 ksi		