

John Shively PE

Analysis of Redi Rock wall

Input data

Project

Task : Texas Roadhouse O'Fallon Missouri
 Customer : Cole Assoc
 Author : John Shively PE
 Date : 6/15/2022
 Project ID : Wall 3 0+45
 Project number : GL220602

Settings

USA - Safety factor (2)

Wall analysis

Verification methodology : Safety factors (ASD)
 Active earth pressure calculation : Coulomb
 Passive earth pressure calculation : Mazindrani (Rankine)
 Earthquake analysis : Mononobe-Okabe
 Shape of earth wedge : Calculate as skew
 Allowable eccentricity : 0.333
 Internal stability : Standard - straight slip surface
 Reduction coeff. of contact first block - base : 1.00

Safety factors			
Permanent design situation			
Safety factor for overturning :	$SF_o =$	1.50	[-]
Safety factor for sliding resistance :	$SF_s =$	1.50	[-]
Safety factor for bearing capacity :	$SF_b =$	2.00	[-]
Safety factor for sliding along geo-reinforcement :	$SF_{sr} =$	1.50	[-]
Safety factor for geo-reinforcement strength :	$SF_{st} =$	1.50	[-]
Safety factor for pull out resistance of geo-reinf. :	$SF_{po} =$	1.50	[-]
Safety factor for connection strength :	$SF_{con} =$	1.50	[-]

Safety factors			
Seismic design situation			
Safety factor for overturning :	$SF_o =$	1.00	[-]
Safety factor for sliding resistance :	$SF_s =$	1.00	[-]
Safety factor for bearing capacity :	$SF_b =$	1.00	[-]
Safety factor for sliding along geo-reinforcement :	$SF_{sr} =$	1.00	[-]
Safety factor for geo-reinforcement strength :	$SF_{st} =$	1.00	[-]
Safety factor for pull out resistance of geo-reinf. :	$SF_{po} =$	1.00	[-]
Safety factor for connection strength :	$SF_{con} =$	1.00	[-]

Blocks

No.	Description	Height h [in]	Width w [in]	Unit weight γ [pcf]
1	Block 28	18.00	28.00	120.00
2	Block 41	18.00	40.50	120.00
3	Block 60	18.00	60.00	130.00