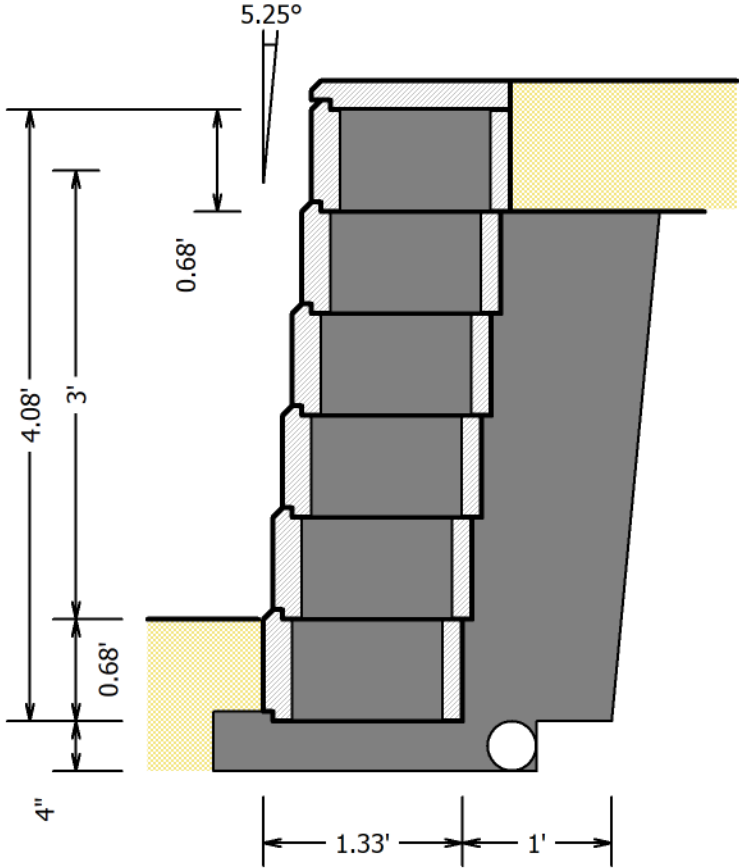


Segmental Retaining Wall Analysis

Organization: **SoilStructure Software**
Project Name: **3 ft Gravity Segmntal Wall**
Job #: **5555**
Design by:
Date: **3/12/2023**



References:

1. Design Manual for Segmental Retaining Walls, 3rd Ed., 2010, NCMA.
2. 2021 IBC
3. Retaining Walls, EM 110-2-2502, Corps of Engineers, 1961
4. Segmental Retaining Wall Software v1.0.0 by SoilStructure.com, 2023

Inputs

General Data

Units	English
Exposed wall height (H')	3.00 ft
Wall embedment (Hemb)	0.68 ft
Backslope angle (beta)	0.00 degree
Live load surcharge (ql)	0.00 psf
Dead load surcharge (qd)	0.00 psf
Offset to crest of slope	20.00 ft

Modular Block Parameters

Block height (Hu)	0.680 ft
Block depth (Wu)	1.33 ft
Cap height (Hcu)	0.0000 ft
Unit weight of conc. (gu)	140.00 pcf
Set back of unit (sbu)	0.750 in

Soil Parameters

	Fric. Angle, degree	Un. Weight, pcf
Retained Soil	30	115
Foundation Soil	32	140
Cohesion (cf)	300 psf	
Leveling Pad Soil	35	125
Coef. of interaction (ub)	0.7	

SWR Unit Interface Shear Data

Apparent ult. shear cap (au)	1100 lb/ft
Apparent fric. ang. (lambdau)	35 degree

Results

General

Retaining wall inclination (w)	5.25 degree
Total wall height (Ht)	3.68 ft
Number of block courses (N)	6
Final total wall height (H)	4.08 ft

Resultant Forces

Delta c	20.00 degree
hs	0.00 ft
hmax con	0.00 ft
Beta con	0.00 degree
Ka con	0.262
	Hor Ver
Active earth pressure coefficient	0.253 0.067
From soil self-weight (Ps)	242.1 63.7 lb/ft
From dead load un. surcharge	0.0 0.0 lb/ft
From live load un. surcharge	0.0 0.0 lb/ft
External	242.1 63.7 lb/ft

Sliding Check

Weight of concrete column (Ww)	760 lb/ft
Sliding resist. at base of gravity SRW (Rsc)	403.597 lb/ft
Factor of safety for sliding (Fssl)	1.67

Overturning Check

Mom. arm for the wght of reinf. infill zone (Xw)	0.85 ft
Resisting mom. due to vertical comp. (Mr)	740.37 lb-ft
Driving moment arm (Mo)	329.23 lb-ft
Factor of safety for overturning (FSot)	2.25

Bearing Check

Eccentricity of resultant vert. bearing force (ec)	0.25 ft
ew	0.00 ft
Bc	0.84 ft
Bf	1.33 ft
B'f	0.84 ft
Ult. bearing capacity of foundation soils (Qult)	14626 psf
Applied bearing pressure (Qac)	982 psf
Factor of safety bearing capacity (FSbc)	14.89

Internal Sliding Check

PsVk	44.2555 lb/ft
PqdVk	0.0000 lb/ft
Wwk	633.1 lb/ft
Shear Capacity at E1 (Vuk)	1543.29 lb/ft
Factor of safety internal sliding (FSsck) (???)	34.87