



HD ENGINEERING & DESIGN, INC

11656 W. 75TH STREET
SHAWNEE, KS 66214

WWW.HDENGINEERS.COM

913.631.2222

SERVICE@HDENGINEERS.COM

WYSS HOME BUILDING LLC

Permit No: PRRES20213908

Plan Name:

Project Address: 2317 SW CHASE CIR, LEES SUMMIT, MO 64082

Parcel Number: 69520070500000000

Location: SUMMIT VIEW FARMS 3RD PLAT---LOT 74

BUILDER: WYSS HOMES
ADDRESS: LOT 74 SVF
CITY: LEE'S SUMMIT MO

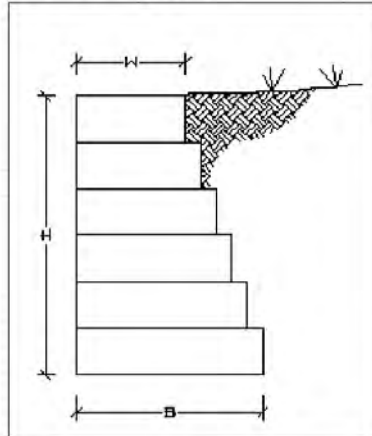
H= 8 ft
W= 2 ft
B= 6.5 ft

Lateral Pressure:

60 pcf

$P = H^2/2 * 45 \text{ pcf} * (1' \text{ Strip})$
P= 1920 #

Retaining Wall



Weights:

Wall:
 $W = (B+W)/2 * H * 150 \text{ pcf}$
 $W_w = 5100 \text{ #}$

Soil:
 $W_s = H * (B-W)/2 * 110 \text{ pcf}$
 $W_s = 1980 \text{ #}$

Sliding Resistance:

$F_f = (W_w + W_s) * 0.45$
 $F_f = 3327.6 \text{ #}$

Safety Factor

$SF = F_f / P$
SF= 1.73
If > 1.5 then OK

Overturning Resistance:

Centroid= 2.32 ft
 $M_o = 5120 \text{ ft-#}$
 $M_R = 11850 \text{ ft-#}$
 $M_s = 9900 \text{ ft-#}$

Safety Factor

$SF = (M_R + M_s) / M_o$
SF= 4.25
If > 1.5 then OK

Soil Bearing

$W_s = 1980 \text{ #}$
 $W_w = 5100 \text{ #}$
P= 1920 #
R= 7080 #
X= 2.35 ft
eccentricity= 0.901 ft
Toe Bearing= 1995.22 #

Bearing Check

$BC = (\text{Toe Bearing} / 2000 \text{ psf})$
BC= 1.00
If < or = 1 then OK





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H= 6 ft
W= 2 ft
B= 4.25 ft

Lateral Pressure:

60 pcf

$$P = H^2/2 * 45 \text{pcf} * (1' \text{ Strip})$$

$$P = 1080 \#$$

Weights:

Wall:

$$W = (B+W)/2 * H * 150 \text{pcf}$$

$$W_W = 2812.5 \#$$

Soil:

$$W = H * (B-W)/2 * 110 \text{pcf}$$

$$W_S = 742.5 \#$$

Sliding Resistance:

$$F_F = (W_W + W_S) * 0.45$$

$$F_F = 1670.85 \#$$

Safety Factor

$$SF = F_F / P$$

$$SF = 1.55$$

If > 1.5 then OK

Overturning Resistance:

$$\text{Centroid} = 1.63 \text{ ft}$$

$$M_O = 2160 \text{ ft-}\#$$

$$M_R = 4584.375 \text{ ft-}\#$$

$$M_S = 2599 \text{ ft-}\#$$

Safety Factor

$$SF = M_R + M_S / M_O$$

$$SF = 3.33$$

If > 1.5 then OK

Soil Bearing

$$W_S = 742.5 \#$$

$$W_W = 2812.5 \#$$

$$P = 1080 \#$$

$$R = 3555 \#$$

$$X = 1.41 \text{ ft}$$

$$\text{eccentricity} = 0.712 \text{ ft}$$

$$\text{Toe Bearing} = 1677.28 \#$$

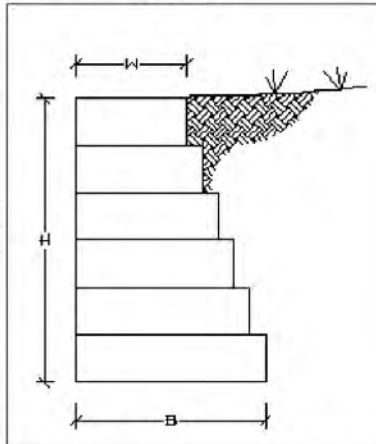
Bearing Check

$$BC = (\text{Toe Bearing} / 2000 \text{psf})$$

$$BC = 0.84$$

If < or = 1 then OK

Retaining Wall



STRUCTURAL REVIEW
HD ENGINEERING & DESIGN
HD: 42110 DATE: 7/5/2022