DESIGN EXAMPLE 1 **Report Printout**

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Title : EX-2
Job # : 702
Description....
Dsgnr:
Page: ____
Date: JUL 11,2009

This Wall in File: c:\program files\rp2007\examples.rp5

Cantilevered Retaining Wall Design

Code: IBC 2006

Criteria

Retained Height	=	10.00 ft
Wall height above soil	=	6.00 ft
Slope Behind Wall	=	0.00 : 1
Height of Soil over Toe	=	12.00 in
Water height over heel	=	0.0 ft

Vertical component of active lateral soil pressure options:
NOT USED for Soil Pressure.
NOT USED for Sliding Resistance.
NOT USED for Overturning Resistance.

Soil Data

Allow Soil Bearing	=	4,000.0 psf
Equivalent Fluid Pressure Method		
Heel Active Pressure	=	30.0 psf/ft
Toe Active Pressure	=	30.0 psf/ft
Passive Pressure	=	300.0 psf/ft
Soil Density, Heel	=	110.00 pcf
Soil Density, Toe		110.00 pcf
Footing|Soil Friction	=	0.400
Soil height to ignore for passive pressure	=	12.00 in

Thumbnail

Surcharge Loads

Surcharge Over Heel	=	0.0 psf
Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	0.0 psf
Used for Sliding & Overturning		

Axial Load Applied to Stem

Axial Dead Load	=	0.0 lbs
Axial Live Load	=	0.0 lbs
Axial Load Eccentricity	=	0.0 in

Lateral Load Applied to Stem

Lateral Load	=	0.0 #/ft
...Height to Top	=	0.00 ft
...Height to Bottom	=	0.00 ft
Wind on Stem	=	15.0 psf

Adjacent Footing Load

Adjacent Footing Load	=	1,500.0 lbs
Footing Width	=	3.00 ft
Eccentricity	=	0.00 in
Wall to Ftg CL Dist	=	4.50 ft
Footing Type		Line Load
Base Above/Below Soil at Back of Wall	=	-1.0 ft
Poisson's Ratio	=	0.500

Design Summary

Wall Stability Ratios

Overturning	=	1.39 Ratio < 1.5!
Sliding	=	1.61 OK
Total Bearing Load	=	5,549 lbs
...resultant ecc.	=	20.87 in
Soil Pressure @ Toe	=	3,658 psf OK
Soil Pressure @ Heel	=	0 psf OK
Allowable	=	4,000 psf
Soil Pressure Less Than Allowable		
ACI Factored @ Toe	=	4,375 psf
ACI Factored @ Heel	=	0 psf
Footing Shear @ Toe	=	23.1 psi OK
Footing Shear @ Heel	=	10.8 psi OK
Allowable	=	67.1 psi

Sliding Calcs (Vertical Component NOT Used)

Lateral Sliding Force	=	2,900.7 lbs
less 100% Passive Force	= -	2,454.2 lbs
less 100% Friction Force	= -	2,219.4 lbs
Added Force Req'd	=	0.0 lbs OK
...for 1.5 : 1 Stability	=	0.0 lbs OK

Load Factors

Building Code	IBC 2006
Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.600
Seismic, E	1.000

Stem Construction

		Top Stem	2nd	3rd
Design Height Above Ftg	ft =	8.00	3.33	0.00
Wall Material Above "Ht"	=	Masonry	Masonry	Masonry
Thickness	=	8.00	12.00	12.00
Rebar Size	=	# 4	# 5	# 8
Rebar Spacing	=	32.00	16.00	8.00
Rebar Placed at	=	Center	Edge	Edge
Design Data				
fb/Fb + fa/Fa	=	0.551	0.906	1.145
Total Force @ Section	lbs =	162.1	1,261.5	2,326.9
Moment....Actual	ft-# =	493.1	3,461.5	9,410.0
Moment....Allowable	ft-# =	518.6	3,820.4	8,221.7
Shear.....Actual	psi =	3.5	11.5	23.1
Shear.....Allowable	psi =	38.7	38.7	38.7
Wall Weight	psf =	78.0	124.0	124.0
Rebar Depth 'd'	in =	3.75	9.00	9.00
LAP SPLICE IF ABOVE	in =	36.00	45.00	72.00
LAP SPLICE IF BELOW	in =	36.00	45.00	
HOOK EMBED INTO FTG	in =			18.78
Masonry Data				
f'm	psi =	1,500	1,500	1,500
Fs	psi =	24,000	24,000	24,000
Solid Grouting	=	Yes	Yes	Yes
Modular Ratio 'n'	=	21.48	21.48	21.48
Short Term Factor	=	1.000	1.000	1.000
Equiv. Solid Thick.	in =	7.60	11.60	11.60
Masonry Block Type	=	Medium Weight		
Masonry Design Method	=	ASD		
Concrete Data				
f'c	psi =			
Fy	psi =			