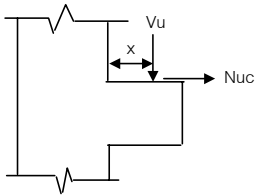


Project :	Property Perfect	Date	23/12/2003	Design Dept.	Page
Title :	Bracket Design	Prepared by	PH	Checked by	Approved by
Bracket Design					
Constant Parameters by SDM					
Material Properties					
fc'	350	ksc			
fy (deform bar)	4000	ksc			
fy (round bar)	2400	ksc			
Section Properties					
b, bracket width	20	cm			
L, bracket length	20	cm			
h, bracket depth	19.4	cm			
co, reinforcement covering	3	cm			
d, effective depth	15.6	cm			
x, Shear arm	10.5	cm			
Load					
		DL, Maximum dead load	8902	kg	
		LL, Maximum live load	1408	kg	
Design					
Ø, strength reduction factor	0.85				
β, factor relating depth of compression block to neutral axis	0.8				
μ, friction coefficient	1.4				
Vu=1.7*DL+2.0*LL	17949.4	kg			
Nuc=0.2*Vu	3589.88	kg			
Mu=Vu*x+Nuc*(h-d)	2021.10	kg-m			
rmin=0.04* fc'/ fy, ratio of tension reinforcement	0.0035				
rb=β*0.85* fc'/fy*(6120/(6120+fy)), ratio of tension reinforcement at equal strain state	0.036				
a(assume), depth of compressive stress block(assume)	2.81	cm.	ok	abs[a-a(assume)] < 0.01	
Af=Mu/(Ø* fy*(d-a/2)), area of flexural reinforcement	4.19	cm^2	r=Af/(b*d)	0.013	ok
a=r* fy*d/(0.85* fc'), depth of compressive stress block	2.815	cm			
An=Nuc/(Ø* fy), area of reinforcement for tension force	1.06	cm^2			
Avf=Vu/(Ø*μ* fy), area of shear reinforcement (Use db Steel)	3.77	cm^2			
(1.) Af+An= 5.24 cm^2 (2.) 2/3*Avf+An= 3.57 cm^2					
As (choose max. value of (1.) or (2.)), Primary reinforcement	5.24	cm^2	Use	3 DB	16 ok
Ah=0.5*Af, area of shear reinforcement parallel to flexural tension reinforcement	2.09	cm^2	Use	3 DB	10 ok
Check Bond :					
Ø2, working factor	0.7				
ldh=320*db/sqrt(fc')*Ø2, development length of hooked bar	19.16	cm			