UNIVERSITI TEKNOLOGI MARA

CIVIL ENGINEERING DESIGN PROJECT

ECS 316

PROJECT NAME:

CADANGAN SEKIM PERUMAHAN DI ATAS LOT 1172,1173,1176,2994,2995,6839,6841 & 6843 MUKIM 11. SUNGAI DUA, SEBERANG PERAi UTARA.

GROUP NAME:

SETIAWAN SDN BHD

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MADAM SALEHA BINTI MD SALLEH

SESION

DEC 14-MARCH 15

Type in your company **name** *here;* 26-3-2015, Thursday, 15:8:22

Slab Detailed Design Calculation:

Code of Practice	D.L.	L.L.	fcu	fy	cover35
BS8110:1985	1.40	1.60	30	460	

Data of Slab Mark FS2; Location: SB-5/D-E

Dimensions, X Y Thickness,Thk ImposedLiveLoad,ILL ImposedDeadLoad,IDL
3830 mm 2190 mm 125 mm 2.00 kN/m"2 1.00 kN/m"2

TotalDeadLoad = SelfWeight + ImposedDeadLoad
= Thk*ConcreteDensity/1000 + IDL = 125*24/1000 + 1.00 = 4.00 Total factored load, Wu = 1.40*4.00+1.60*2.00 = 8.80 kN/m"2
Total factored load*lx*lx, Wu*Lx*Lx = WL 8.80*2.190*2.190 = 42.21 kNm/m

Long/Short span-ratio, ly/lx = 3830/2190 1.75

Span and support coefficients, Bx, By, Bsx, Bsy0.058 0.096; 0.044; 0.000;

Moment based on the above coefficients (before redistribution):Short span moment, Mx = Bx*WL = 0.096 * 42.21 = 4.04
Long span moment, My = By*WL = 0.044 * 42.21 = 1.84
Support long span moment, Msy = Bsy*WL = 0.058 * 42.21 2.45

Summary of Moment, Steel Area Required, Rebar Provided:

	Mxx	Myy	Msyl	Msy2	Msxl Msx2
Moment	1. 84	4.04	0.00	2.45	0.00 0.00
Area188	188	188	188	188	188
Rebar	Tl0-250	Tl0-250	Tl0-250	Tl0-250	Tl0-250

Deflection Check:

Dimensions Y, 2190 < X, 3830 AND bottom of bottom(BB) rebar is spanning Y-direction:
So effective depth, d = Thickness - cover - YRebar/2 = 125-35-10/2 = 85.0 mm

Span/depth's ratio, Ar = 1/d = 2190/85.0 = 25.8Basic
Span/depth's ratio, Br = 20.0
A = 5fyAs,req /(8As,prov) = 5*460*188/(8*314) = 171.6
B = 120*(0.9 + M/(b*d"2)) = 120*(0.9+4.04*1000/(85.0*85.0}= 175.0
Modification Factor, MF 0.55 + (477 - A)/B = 0.55+(477-171.6)/175.02.29
Modification Factor, MF 2.29 > 2.0 ---> MF = 2.0
Slab deflection ratio = MF*Br/Ar = 2.00*20.0/25.76 = 1.55
Ratio >= 1.0.: Deflection check PASSED

Data of Slab Mark FS3; Location: 5B-5/E-I

Dimensions, X Y Thickness,Thk Imposed.LiveLoad,ILL ImposedDeadLoad,IDL
5760 mm 2190 mm 125 mm 2.00 kN/m"'2 1.00 kN/m"2

TotalDeadLoad = SelfWeight + ImposedDeadLoad
= Thk*ConcreteDensity/1000 + IDL = 125*24/1000 + 1.00 = 4.00
Total factored load, Wu = 1.40*4.00+1.60*2.00 = 8.80 kN/m"2
Total factored load*lx*lx, Wu*Lx*Lx = WL 8.80*2.190*2.190 = 42.21 kNm/m

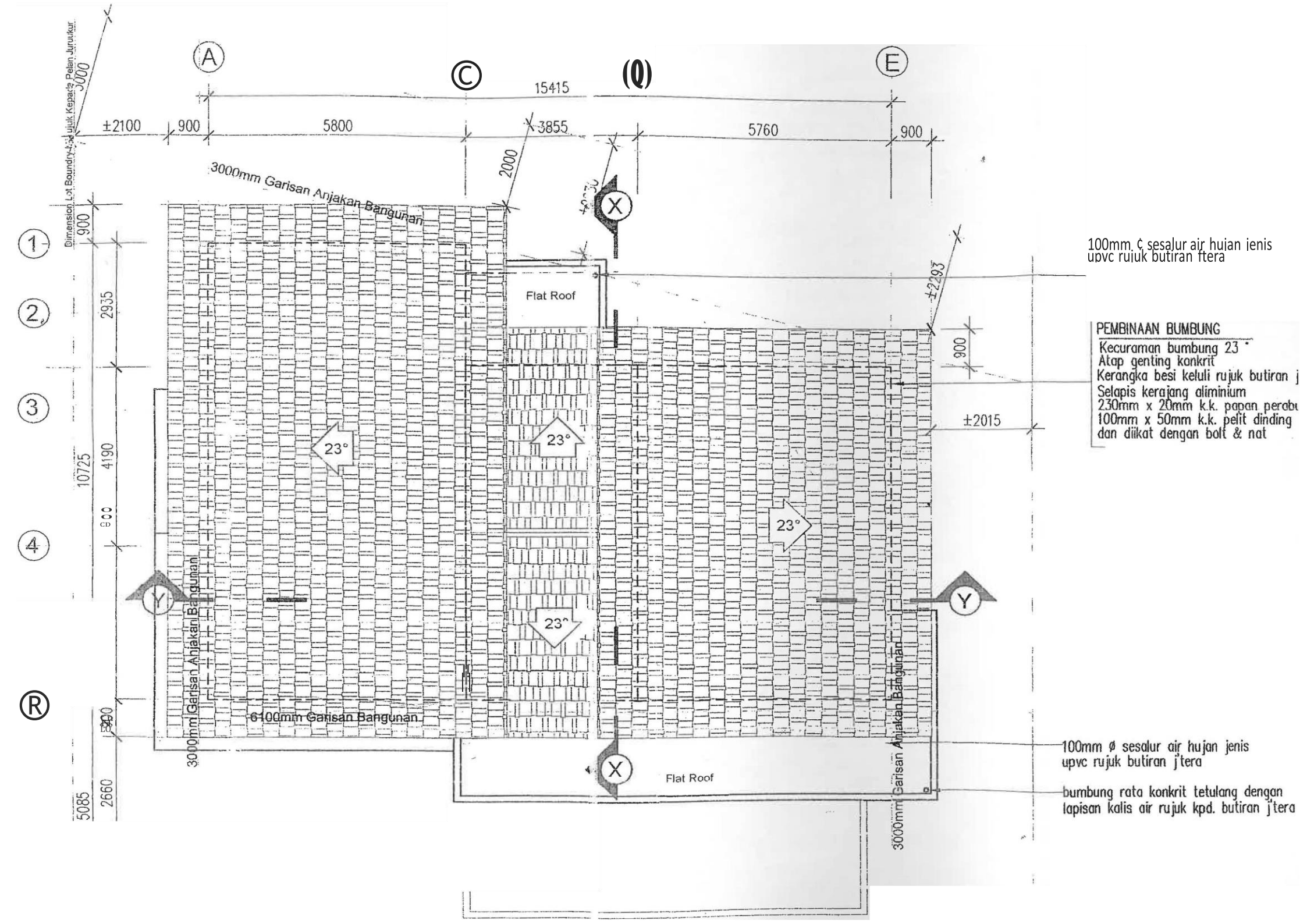
Long/Short span-ratio, ly/lx = 5760/2190 2.63
ly/lx > f2 ---> Increase moment coefficients by: l+(min(2.63,8)-2)/8*0.15 = 1.01182
To allow for one-way slab, adjust the short span moment coefficients by 1.01182 times

Span and support coefficients, Bx, By, Bsx, Bsy 0.118; 0.034; 0.000; 0.045

Moment based on the above coefficients (before redistribution):
Short span moment, Mx = Bx*WL = 0.118 * 42.21 = 4.96
Long span moment, My = By*WL = 0.034 * 42.21 = 1.43
Support long span moment, Msy = Bsy*WL = 0.045 * 42.21 1.91

Summary of Moment, Steel Area Required, Rebar Provided:

	Mxx	Myy	Msyl	Msy2	Msxl	Msx2
Moment	1.43	4.96	1.91	1.91	0.00	0.00
Area	188	188	188	188	188	188
Rebar	Tl0-250	Tl0-250	Tl0-250	Tl0-250	Tl0-250	Tl0-250


A
C
D
E
15415
±2100
900
5800
3855
5760
900
2000
3000mm Garisan Anjakan Bangunan
Dimension Lot Boundry Adalah Kepada Pelan Jurukur
3000
X
Flat Roof
±2293
100mm ¢ sesalur air hujan jenis upvc rujuk butiran jtera
PEMBINAAN BUMBUNG
Kecuraman bumbung 23°
Atap genting konkrit
Kerangka besi keluli rujuk butiran j
Selapis kerajang aliminium
230mm x 20mm k.k. papan perabu
100mm x 50mm k.k. pelit dinding
dan diikat dengan bolt & nat
900
±2015
1
2
3
4
R
2935
10725
4190
900
23°
23°
23°
23°
Y
Y
3000mm Garisan Anjakan Bangunan
6100mm Garisan Bangunan
3000mm Garisan Anjakan Bangunan
X
Flat Roof
100mm ø sesalur air hujan jenis upvc rujuk butiran jtera
bumbung rata konkrit tetulang dengan lapisan kalis air rujuk kpd. butiran jtera
5085
2660