

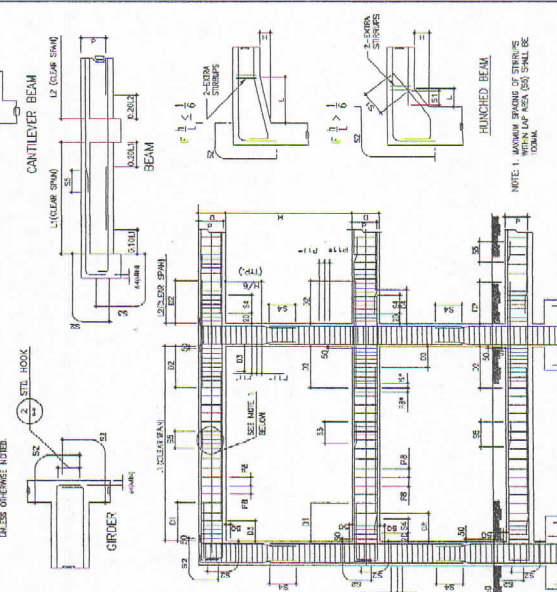
$f_c = 29.21 \text{ MPa (424)}$
 $f_y = 275.3 \text{ MPa (408)}$ For #12 and smaller
 $f_y = 413.7 \text{ MPa (604)}$ For #16 and larger

BAR SIZE	MINIMUM DEVELOPMENT LENGTH		MIN LAP LENGTH	
	TENSION	COMPRESSION	TENSION	COMPRESSION
#10	51 (mm)	52 (mm)	52 (mm)	54 (mm)
#12	60	61	61	63
#14	70	71	71	73
#16	80	81	81	83
#18	90	91	91	93
#20	100	101	101	103
#22	110	111	111	113
#24	120	121	121	123
#26	130	131	131	133
#28	140	141	141	143
#30	150	151	151	153
#32	160	161	161	163
#36	180	181	181	183
#40	200	201	201	203
#44	220	221	221	223
#48	240	241	241	243

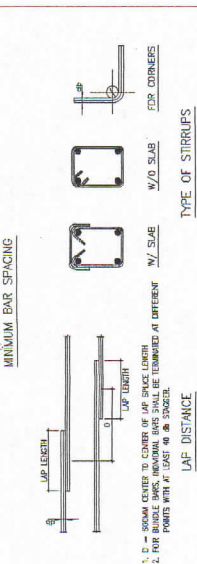
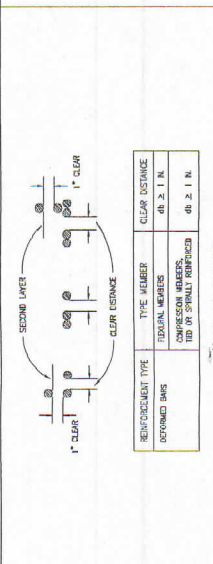
$f_c = 27.53 \text{ MPa (408)}$
 $f_y = 275.3 \text{ MPa (408)}$ For #12 and smaller
 $f_y = 413.7 \text{ MPa (604)}$ For #16 and larger

BAR SIZE	MINIMUM DEVELOPMENT LENGTH		MIN LAP LENGTH	
	TENSION	COMPRESSION	TENSION	COMPRESSION
#10	51 (mm)	52 (mm)	52 (mm)	54 (mm)
#12	60	61	61	63
#14	70	71	71	73
#16	80	81	81	83
#18	90	91	91	93
#20	100	101	101	103
#22	110	111	111	113
#24	120	121	121	123
#26	130	131	131	133
#28	140	141	141	143
#30	150	151	151	153
#32	160	161	161	163
#36	180	181	181	183
#40	200	201	201	203
#44	220	221	221	223
#48	240	241	241	243

NOTE: 1. DEVELOPMENT LENGTH EITHER IN TENSION OR COMPRESSION SHALL BE INCREASED BY:
 1) 50% FOR THREE BAR BUNDLE
 2) 10% FOR 50% STAINLESS STEEL
 3. FOR 50% STAINLESS STEEL, DEVELOPMENT LENGTH SHALL BE APPLIED TO EACH BAR AND OTHERS EXCEPT TO STEEL BUNDLE DEVELOPMENT LENGTH.

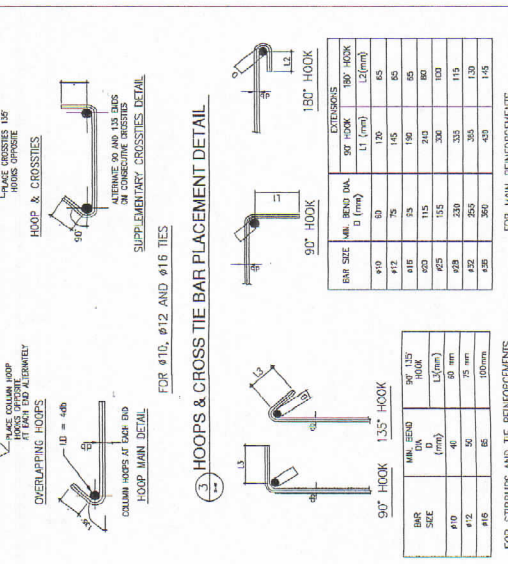


1. MINIMUM DEVELOPMENT LENGTH AND LAP LENGTH



NOTE: 1. IF THE LOCATION OF REINFORCED BLOCK, THE POSITION OF BEAMS SHALL BE REFINISHED.

2. BEAM & GIRDER CONSTRUCTION JOINT DETAIL



3. STANDARD HOOK & BEND

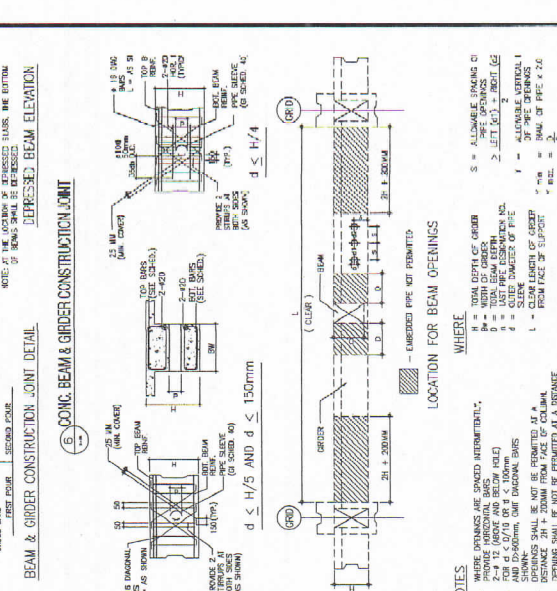
FOR STRIPPERS AND TIE REINFORCEMENTS

BAR SIZE	MIN. BEND DIA. D (mm)	90° HOOK L1 (mm)	180° HOOK L2 (mm)	EXTENSION
#10	60	75	100	65
#12	75	100	125	80
#14	90	125	150	95
#16	105	150	175	110
#18	120	175	200	125
#20	135	200	225	140
#22	150	225	250	155
#24	165	250	275	170
#26	180	275	300	185
#28	195	300	325	200
#30	210	325	350	215
#32	225	350	375	230
#36	255	375	405	260
#40	285	405	435	290

SCHEDULE OF DIAGONAL CROSS BARS

NO. OF BARS	BEAM WIDTH UP TO 150mm	200mm TO 300mm	350mm TO 450mm	500mm TO 600mm
2 - #8				
2 - #9				
4 - #9				
6 - #9				

NOTES ON HORIZONTAL JOINTS
 1. LOCATE CONSTRUCTION JOINT BETWEEN 1/3 TO 1/2 BUT NOT WITHIN 12" OF END
 2. SAME FOR ALL JOINTS
 3. PROVIDE ALTERNATE JOINT CONSTRUCTION FOR ALL JOINTS
 4. PROVIDE ALTERNATE JOINT CONSTRUCTION FOR ALL JOINTS
 5. PROVIDE ALTERNATE JOINT CONSTRUCTION FOR ALL JOINTS



4. DETAIL OF BEAM OPENINGS



NOTES:
 1. WHERE OPENINGS ARE SPACED INTERNALLY, 2" MIN. (MAX. AND BELOW HOLE)
 2. FOR $d \le 0.75 \text{ H}$ OR $d \le 100 \text{ mm}$
 3. SHANKS OF TOP AND BOTTOM BARS SHALL BE LAP WELDED AT A DISTANCE OF 200mm FROM FACE OF COLUMN
 4. OPENING SHALL BE NOT BE PERMITTED AT A DISTANCE OF 100mm FROM FACE OF SUPPORT

PROJECT TITLE: PROPOSED 2-STORY ACADEMIC BUILDING
 PROJECT NO: 185-429-257
 CLIENT: JEFF ARCHITECTURAL & ENGINEERING SERVICES
 ARCHITECT'S LICENSE: JASON J. PALCHAK
 ENGINEER'S LICENSE: JASON J. PALCHAK
 PROJECT LOCATION: 185-429-257
 SHEET NO: S-2
 SHEET CONTENTS: STRUCTURAL NOTES
 APPROVED BY: JEROME RODRIGUEZ, F. FAJARITO, ASPCO - DIRECTOR
 CHECKED BY: JEROME RODRIGUEZ, F. FAJARITO, ASPCO - DIRECTOR