APPENDIX-D

TABLE FOR STRAINS IN MAIN REINFORCEMENT

APPENDIX-D Contains Tables (D-1 to D-8) are of Steel Strain in main steel for test beams of series - S.

TABLE-D.1

STEEL STRAINS ALONG REINFORCING AT STRAIN GAUGE LOCATIONS

BEAM NO. F1.5 D60 **L/D = 1.0** **V_F = 1.5 % FF**

Machine Load (t)	Strain in main steel μ cm/cm Gauge No.	
	1	2
0.0	00	00
2.0	06	06
4.0	18	13
6.0	20	16
8.0	23	19
12.0	36	21
16.0	56	27
18.0	66	34
20.0	86	40
23.0	116	55
26.0	145	95
29.0	195	137
32.0	224	220
35.0	258	294
38.0	310	448
41.0	390	607
44.0	624	811
47.0	772	989
50.0	786	1337

Failed due to inclined shear crack developed in both shear zone

SHEAR FAILURE

TABLE-D.2

STEEL STRAINS ALONG REINFORCING AT STRAIN GAUGE LOCATIONS

BEAM NO. F1.5 D50 **L/D = 1.2** **V_F = 1.5 % FF**

Machine Load (t)	Strain in main steel μ cm/cm Gauge No.	
	1	2
0.0	00	00
3.0	06	08
6.0	14	16
9.0	18	25
12.0	20	36
15.0	28	58
18.0	60	88
21.0	81	154
24.0	133	235
27.0	251	281
30.0	349	361
33.0	680	442
36.0	1244	538
39.0	1780	684
42.0	2192	777
45.0	2581	968

Failed due to inclined shear crack developed in both shear zone

SHEAR FAILURE

TABLE-D.3

STEEL STRAINS ALONG REINFORCING AT STRAIN GAUGE LOCATIONS

BEAM NO. F1.5 D40 **L/D = 1.5** **V_F = 1.5 % FF**

Machine Load (t)	Strain in main steel μ cm/cm Gauge No.	
	1	2
0.0	00	00
2.0	06	06
4.0	13	18
6.0	20	40
8.0	30	60
10.0	42	93
12.0	60	134
14.0	91	201
16.0	112	268
18.0	164	426
20.0	271	711
22.0	369	850
24.0	474	1005
26.0	540	1166
28.0	582	1265
30.0	637	1430
32.0	728	1586
34.0	860	1768

Failed due to inclined shear crack developed in both shear zone

SHEAR FAILURE

TABLE-D.4

STEEL STRAINS ALONG REINFORCING AT STRAIN GAUGE LOCATIONS

BEAM NO. F1.5 D30 **L/D = 2.0** **V_F = 1.5 % FF**

Machine Load (t)	Strain in main steel μ cm/cm Gauge No.	
	1	2
0.0	00	00
2.0	08	7
4.0	38	34
6.0	106	86
8.0	196	164
10.0	280	270
12.0	370	336
14.0	470	390
16.0	552	451
18.0	584	610
20.0	696	684
22.0	795	754
24.0	1043	811
26.0	1362	837
27.0	1586	809
28.0	1648	770
28.5	1856	580
29.0	2390	431

Failed due to inclined shear crack developed in both shear zone

SHEAR FAILURE

TABLE-D.5

STEEL STRAINS ALONG REINFORCING AT STRAIN GAUGE LOCATIONS

BEAM NO. F1.5 D20 **L/D = 3.0** **V_F = 1.5 % FF**

Machine Load (t)	Strain in main steel μ cm/cm Gauge No.	
	1.00	2.00
0.0	00	00
1.0	13	18
2.0	29	70
3.0	40	108
4.0	88	236
5.0	152	358
6.0	258	438
7.0	347	551
8.0	432	668
9.0	485	741
10.0	567	840
11.0	672	948
12.0	795	1044
13.0	906	1119
14.0	998	1221
15.0	1085	1382
16.0	1109	1491
17.0	1150	1448

Crack initiated in flexure and failed with inclined shear crack

FLEXURE-SHEAR FAILRE

TABLE -D.6

STEEL STRAINS ALONG REINFORCING AT STRAIN GAUGE LOCATIONS

BEAM NO. F1.5 D15 **L/D = 4.0** **V_F = 1.5% FF**

Machine Load (t)	Strain in main steel μ cm/cm Gauge No.		
	1	2	3
0.0	00	00	00
1.0	31	351	24
2.0	84	770	49
3.0	193	1145	86
4.0	370	1478	211
5.0	780	1735	550
6.0	1033	1913	772
6.5	---	2112	940
7.0	---	2536	992
7.5	---	2936	1118
8.0	---		1262
8.5	---		1342

Crack initiated in flexure and failed with inclined shear crack

FLEXURE-SHEAR FAILURE

TABLE -D.7

STEEL STRAINS ALONG REINFORCING AT STRAIN GAUGE LOCATIONS

BEAM NO. F1.5 D12 **L/D = 5.0** **V_F = 1.5% FF**

Machine Load (t)	Strain in main steel μ cm/cm Gauge No. 1	2	3
0.0	00	00	00
1.0	54	330	38
2.0	289	565	210
3.0	527	803	364
4.0	744	1015	520
5.0	1064	1231	796
6.0	1443	1626	---

Failed in Flexure. No shear crack had developed

FLEXURE FAILURE

TABLE -D.8

STEEL STRAINS ALONG REINFORCING AT STRAIN GAUGE LOCATIONS

BEAM NO. F1.5 D10 **L/D = 6.0** **V_F = 1.5% FF**

Machine Load (t)	Strain in main steel μ cm/cm Gauge No. 1	2	3
0.0	00	00	00
1.0	26	151	28
2.0	336	404	338
3.0	787	710	784

Failed in Flexure. No shear crack had developed

FLEXURE FAILURE