**Structural Analysis**

**DE-ADDICTION CENTER**

**AT**

**GOVT. RAJINDRA MEDICAL COLLEGE,PATIALA**

**notes**

**1. Staad Pro programme has been used for analysis &design, the input to the program is reproduced here.**

**2. Foundation design has been designed considering soil data supplied by the client.Net Safe Bearing capacity taken for design is**

**100 KN/m2 at foundation level .**

**3. M-20 concrete has been used as mentioned in the drawing.**

**4. Cold twisted steel must conform to Fe-500 grade of IS: 1786**

**5 All Columns and Beams have been designed by the programme itself as per IS: 456-2000, so no separate calculations are reproduced here.**

**6. Building has been designed for 3 stories i.e.**

**( GF+2 stories above)**

**1.0 Loads**

Self Wt of Slab =0.125x25.00 =3.125 KN/m2

Wt of Filling =0.08x16.00 =1.28 KN/m2

Wt of Flooring =0.04x20.00 =0.80 KN/m2

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 Total =5.21 KN/m2(Say5.5 KN/m2)

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Live load on floors =3.0 KN/m2

**Toilet**

Self Wt of Slab =0.150x25.00 =3.75 KN/m2

Wt of Filling =0.08x16.00 =1.28 KN/m2

Eq load of partition =4.0 KN/sq m

Wt of Flooring =0.04x20.00 =0.80 KN/m2

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 Total =11.83 KN/m2(Say12 KN/m2)

 Live load =2.00 KN/sq m

**2.0 DESIGN OF FOUNDATIONS**

**Foundation F-1**

 Design load (Factored) **PU** =1100 K N

 Add self = 100KN

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 1200KN

 Take B.C 100KN/ m2

 1200 10

 Downward pressure = ------------ + --------------- =96KN/ m2 < 100

 1.5x( 2.7X3.15) 1.5(2.7x3.152/6)

 Provide 10**/-6//x9/-0//**

Pressure Pu= 1100/ (2.7x3.15) =129.3KN/m2

 Mu =129.3x[3.15-0.525]2/8 =111.3 KN .m

 Provide **D**=21//

 Mu /bd2=111.3x106/1000x(465)2=0.51

**Ast**= 0.12x52.5=6.3cm2(min.)

**Foundation F-2**

 Design load (Factored) **PU** =830 K N

 Add self = 80KN

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 910KN

 Take B.C 100KN/ m2

 910 15

 Downward pressure = ------------ + --------------- =97KN/ m2 < 100

 1.5x( 2.7X2.4) 1.5(2.4x2.72/6)

 Provide 9**/-0//x8/-0//**

Pressure Pu= 830/ (2.4x2.7) =128.0KN/m2

 Mu =128x[2.7-0.525]2/8 =75.7 KN .m

 Provide **D**=18//

 Mu /bd2=75.7x106/1000x(390)2=0.50

**Ast**= 0.12x45.0=5.4cm2(min.)

**Foundation F-3**

 Design load (Factored) **PU** =680 K N

 Add self = 70KN

 -----------

 750KN

 Take B.C 100KN/ m2

 750 15

 Downward pressure = ------------ + --------------- =91KN/ m2 < 100

 1.5x( 2.4X2.4) 1.5(2.4x2.42/6)

 Provide 8**/-0//x8/-0//**

Pressure Pu= 680/ (2.4x2.4) =118KN/m2

 Mu =118x[2.4-0.525]2/8 =51.9KN .m

 Provide **D**=18//

 Mu /bd2=51.9x106/1000x(390)2=0.35

**Ast**= 0.12x45.0=5.4cm2(min.)

**Foundation F-4**

 Design load (Factored) **PU** =580 K N

 Add self = 60KN

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 640KN

 Take B.C 100KN/ m2

 640 15

 Downward pressure = ------------ + --------------- =95.7KN/ m2 < 100

 1.5x( 2.18X2.18) 1.5(2.18x2.182/6)

 Provide 7**/-3//x7/-3//**

Pressure Pu= 580/ (2.18x2.18) =122.6KN/m2

 Mu =122.6x[2.18-0.525]2/8 =42KN .m

 Provide **D**=18//

 Mu /bd2=42x106/1000x(390)2=0.28

**Ast**= 0.12x45.0=5.4cm2(min.)

**3.0 Columns**

 Design from computer output

**4.0 Plinth beams**

 Design from computer output

.

**5.0 Floor beams**

 Design from computer output

**6.0 Slab Design Slab**

**S1 (5” thk.)**

lx=3.0 m

ly=6.0 m

ly/lx=2.0 consider it two way t=125mm

M=1.5x8.5x3.0x3.0=115

Moment along short span

-Ve Mux = 0.091x115=10.5 KN.m

+ Ve Mux=0.069x115=8.0 KN.m

Moment along long span

-Ve Mux = 0.047x115=5.4 KN.m

+ Ve Mux=0.035x115=4.0 KN.m

**S2 (6” thk.)-Toilet**

lx=3.37 m

ly=4.5 m

ly/lx=1.34 consider it two way t=150mm

M=1.5x14.0x3.37x3.37=238.5

Moment along short span

-Ve Mux = 0.068x238.5=16.2 KN.m

+ Ve Mux=0.051x238.5=12.2 KN.m

Moment along long span

-Ve Mux = 0.047x238.5=11.2 KN.m

+ Ve Mux=0.035x238.5=8.3 KN.m

**STAIR**

Span 3.3m

Self wt. slab 6” =375 Kg/m2

Self wt. steps=0.25x0.15x2500/(2x0.25)=187 Kg/m2

Self wt finishing=0.4x2500 =100 Kg/m2

 Live load =400 Kg/m2

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 Total= 1062 Kg/m2

 Say 11.0KN/m2

+MU at centre=wxl2/10=1.5x11.0x3.3x3.3/8=22.5KN.m

Take t=6”

Provide12mm@6// c/c

Distribution steel 0.12x15.0x100/100 =1.8cm2

**Landing beam LB-1**

Load on beam =11.0x3.3/2=18.2kN/m

Self wt =5.7kN/m

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 24kN/m

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MU =1.5x24x3.37x3.37/8=51kN.m

provide 48”x6” beam

MU/bd2=51x1000000/(1200x120x120)=2.95

Ast=0.85x120.0x12.0/100=12.24cm2

**STAAD INPUT FILE**

*STAAD SPACE*

*START JOB INFORMATION*

*ENGINEER DATE 15-Jun-14*

*END JOB INFORMATION*

*INPUT WIDTH 79*

*UNIT METER KN*

*JOINT COORDINATES*

*1 0 0 0; 2 3.38 0 0; 3 6.38 0 0; 4 9.38 0 0; 5 12.38 0 0; 6 15.38 0 0;*

*8 21.38 0 0; 9 25.88 0 0; 10 30.38 0 0; 11 33.38 0 0; 22 30.38 0 3;*

*23 33.38 0 3; 25 0 0 4.5; 47 33.38 0 6; 49 0 0 9; 50 3.38 0 9; 51 6.38 0 9;*

*52 9.38 0 9; 53 12.38 0 9; 54 15.38 0 9; 55 18.38 0 9; 56 21.38 0 9;*

*59 33.38 0 9; 61 0 0 12; 62 3.38 0 12; 63 6.38 0 12; 64 9.38 0 12;*

*65 12.38 0 12; 66 15.38 0 12; 67 18.38 0 12; 68 21.38 0 12; 101 24.38 0 9;*

*103 24.38 0 12; 105 27.38 0 12; 107 0 1.5 0; 108 3.38 1.5 0; 109 6.38 1.5 0;*

*110 9.38 1.5 0; 111 12.38 1.5 0; 112 15.38 1.5 0; 114 21.38 1.5 0;*

*115 25.88 1.5 0; 116 30.38 1.5 0; 117 33.38 1.5 0; 119 30.38 1.5 3;*

*120 33.38 1.5 3; 122 0 1.5 4.5; 128 18.38 1.5 4.5; 130 30.38 1.5 6;*

*131 33.38 1.5 6; 133 0 1.5 9; 134 3.38 1.5 9; 135 6.38 1.5 9; 136 9.38 1.5 9;*

*137 12.38 1.5 9; 138 15.38 1.5 9; 139 18.38 1.5 9; 140 21.38 1.5 9;*

*142 33.38 1.5 9; 144 0 1.5 12; 145 3.38 1.5 12; 146 6.38 1.5 12;*

*147 9.38 1.5 12; 148 12.38 1.5 12; 149 15.38 1.5 12; 150 18.38 1.5 12;*

*151 21.38 1.5 12; 153 33.38 1.5 12; 168 24.38 1.5 4.5; 169 25.88 1.5 6;*

*170 24.38 1.5 0; 171 24.38 1.5 6; 172 24.38 1.5 9; 173 24.38 1.5 3;*

*174 24.38 1.5 12; 176 27.38 1.5 12; 178 0 5.1 0; 179 3.38 5.1 0;*

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*MEMBER INCIDENCES*

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*945 368 581; 947 372 375; 948 373 376; 950 378 425; 951 425 379; 952 379 426;*

*953 426 380; 954 380 427; 958 432 371; 959 432 433; 960 378 385; 961 425 386;*

*962 379 387; 963 426 388; 964 380 389; 965 427 390; 966 381 391; 967 428 392;*

*968 417 418; 969 418 419; 970 418 431; 971 431 437; 972 375 382; 973 382 383;*

*974 383 576; 975 376 383; 977 376 577; 978 433 417; 979 433 375; 980 385 386;*

*981 386 387; 982 387 388; 983 388 389; 984 389 390; 985 390 391; 986 391 392;*

*987 392 419; 988 385 396; 989 396 515; 990 386 397; 991 397 516; 992 387 398;*

*993 398 517; 994 388 399; 995 399 518; 996 389 400; 997 400 519; 998 390 401;*

*999 401 520; 1000 391 402; 1001 402 521; 1002 392 403; 1003 403 522;*

*1004 419 420; 1005 420 524; 1006 419 436; 1007 393 394; 1008 394 564;*

*1013 396 397; 1014 397 398; 1015 398 399; 1016 399 400; 1017 400 401;*

*1018 401 402; 1019 402 403; 1020 403 420; 1029 420 422; 1030 422 429;*

*1031 429 404; 1032 383 394; 1033 394 404; 1034 404 430; 1035 430 579;*

*1037 422 580; 1038 429 578; 1040 430 566; 1041 382 393; 1043 375 376;*

*1044 435 381; 1045 435 434; 1046 434 433; 1047 436 393; 1048 437 382;*

*1051 438 563; 1052 439 562; 1053 577 576; 1055 404 565; 1062 396 445;*

*1063 397 446; 1074 445 526; 1075 446 527; 1077 445 446; 1082 454 455;*

*1083 455 194; 1084 194 345; 1085 345 425; 1086 456 457; 1087 457 196;*

*1088 196 346; 1089 346 426; 1090 458 459; 1091 459 198; 1092 198 347;*

*1093 347 427; 1094 461 128; 1095 460 461; 1096 461 325; 1097 325 355;*

*1098 355 435; 1099 462 463; 1100 463 324; 1101 324 354; 1102 354 434;*

*1103 108 455; 1104 455 134; 1105 110 457; 1106 457 136; 1107 112 464;*

*1108 459 138; 1109 464 459; 1110 464 461; 1111 465 140; 1112 463 465;*

*1113 461 463; 1114 463 173; 1115 153 488; 1116 142 153; 1117 130 341;*

*1118 172 466; 1119 466 588; 1164 467 479; 1165 468 480; 1166 469 481;*

*1167 470 482; 1168 471 483; 1169 472 484; 1170 473 485; 1171 474 486;*

*1172 475 488; 1174 477 490; 1175 478 491; 1176 479 480; 1177 480 481;*

*1178 481 482; 1179 482 483; 1180 483 484; 1181 484 485; 1182 485 486;*

*1183 486 490; 1184 490 491; 1187 488 512; 1188 479 492; 1189 480 493;*

*1190 481 494; 1191 482 495; 1192 483 496; 1193 484 497; 1194 485 498;*

*1195 486 499; 1196 488 343; 1198 490 501; 1199 491 344; 1200 492 493;*

*1201 493 494; 1202 494 495; 1203 495 496; 1204 496 497; 1205 497 498;*

*1206 498 499; 1207 499 501; 1208 501 344; 1209 343 513; 1210 492 502;*

*1211 493 503; 1212 494 504; 1213 495 505; 1214 496 506; 1215 497 507;*

*1216 498 508; 1217 499 509; 1218 343 361; 1220 501 511; 1221 344 362;*

*1222 512 568; 1223 513 569; 1224 502 503; 1225 503 504; 1226 504 505;*

*1227 505 506; 1228 506 507; 1229 507 508; 1230 508 509; 1231 509 511;*

*1232 511 362; 1233 361 514; 1234 514 570; 1235 502 515; 1236 503 516;*

*1237 504 517; 1238 505 518; 1239 506 519; 1240 507 520; 1241 508 521;*

*1242 509 522; 1243 361 441; 1245 511 524; 1246 362 442; 1247 515 516;*

*1248 516 517; 1249 517 518; 1250 518 519; 1251 519 520; 1252 520 521;*

*1253 521 522; 1254 522 524; 1255 524 442; 1256 441 525; 1257 525 571;*

*1258 515 526; 1259 516 527; 1260 526 527; 1261 176 528; 1262 528 153;*

*1263 529 198; 1264 529 325; 1265 324 200; 1266 530 173; 1267 173 244;*

*1268 244 353; 1269 353 433; 1273 532 343; 1274 533 344; 1275 533 531;*

*1276 531 532; 1280 535 361; 1281 536 362; 1282 536 534; 1283 534 535;*

*1284 537 347; 1285 537 355; 1286 354 348; 1313 538 543; 1314 539 544;*

*1315 540 545; 1316 541 546; 1317 542 547; 1318 543 544; 1319 544 545;*

*1320 545 546; 1321 546 547; 1322 547 548; 1323 548 568; 1324 543 549;*

*1325 544 550; 1326 545 551; 1327 546 552; 1328 547 553; 1329 549 550;*

*1330 550 551; 1331 551 552; 1332 552 553; 1333 553 554; 1334 554 569;*

*1335 549 555; 1336 550 556; 1337 551 557; 1338 552 558; 1339 553 559;*

*1340 555 556; 1341 556 557; 1342 557 558; 1343 558 559; 1344 559 560;*

*1345 560 570; 1346 555 561; 1347 556 562; 1348 557 563; 1349 558 564;*

*1350 559 565; 1351 561 562; 1352 562 563; 1353 563 564; 1354 564 565;*

*1355 565 566; 1356 566 571; 1357 567 568; 1358 568 569; 1359 569 570;*

*1360 570 571; 1361 572 328; 1362 573 329; 1363 574 358; 1364 575 359;*

*1365 576 438; 1366 577 439; 1370 579 441; 1371 580 442; 1372 580 578;*

*1373 578 579; 1374 581 427; 1375 581 435; 1376 434 428; 1377 394 582;*

*1378 404 583; 1379 564 584; 1380 565 585; 1381 582 584; 1382 582 583;*

*1383 583 585; 1384 584 585; 1385 341 142; 1386 491 586; 1387 586 488;*

*1388 173 587; 1389 587 119; 1390 134 145; 1391 135 146; 1392 136 147;*

*1393 137 148; 1394 138 149; 1395 139 150; 1396 140 151; 1397 172 174;*

*1398 588 341; 1399 588 176; 1400 326 247; 1401 356 318; 1402 436 422;*

*DEFINE MATERIAL START*

*ISOTROPIC CONCRETE*

*E 2.17185e+007*

*POISSON 0.17*

*DENSITY 23.5616*

*ALPHA 1e-005*

*DAMP 0.05*

*END DEFINE MATERIAL*

*MEMBER PROPERTY INDIAN*

*120 TO 125 135 146 TO 153 157 TO 164 185 187 189 308 TO 313 323 334 TO 341 -*

*345 TO 352 373 375 377 496 TO 501 511 522 TO 529 533 TO 540 561 563 565 868 -*

*869 TO 873 883 889 TO 896 899 TO 906 920 921 923 1062 1063 1082 TO 1093 1095 -*

*1096 TO 1102 1164 TO 1172 1174 1175 1188 TO 1196 1198 1199 1210 TO 1218 1220 -*

*1221 1235 TO 1243 1245 1246 1258 1259 1266 TO 1269 PRIS YD 0.3 ZD 0.525*

*MEMBER PROPERTY INDIAN*

*127 TO 130 132 133 144 155 315 TO 318 320 321 332 343 503 TO 506 508 509 520 -*

*531 714 TO 716 729 TO 731 875 TO 878 880 881 887 897 926 929 1313 TO 1317 -*

*1324 TO 1328 1335 TO 1339 1346 TO 1350 1357 TO 1360 1377 TO 1379 -*

*1380 PRIS YD 0.525 ZD 0.3*

*198 TO 202 210 211 221 TO 223 229 231 TO 235 237 238 240 241 251 252 254 256 -*

*258 260 262 264 266 268 271 295 302 1094 1103 TO 1109 1111 1112 1115 TO 1119 -*

*1187 1222 1261 1262 1318 TO 1323 1385 1388 TO 1399 PRIS YD 0.375 ZD 0.3*

*191 TO 195 243 TO 250 276 TO 283 292 1110 1113 1114 1176 TO 1184 1386 -*

*1387 PRIS YD 0.3 ZD 0.3*

*392 TO 395 398 399 401 TO 405 413 TO 418 421 422 424 TO 426 428 430 -*

*443 TO 459 481 TO 484 491 493 685 696 699 700 703 TO 705 732 750 TO 753 755 -*

*756 758 TO 762 767 770 TO 775 778 779 781 TO 783 785 787 800 TO 816 -*

*838 TO 841 846 848 851 852 855 856 859 TO 861 863 941 TO 945 947 948 950 -*

*951 TO 954 959 961 TO 975 977 TO 979 990 TO 1008 1030 TO 1033 1038 1040 1041 -*

*1043 1044 1047 1048 1051 TO 1053 1055 1074 1075 1263 1265 1284 1286 1361 -*

*1362 TO 1366 1374 1376 1381 TO 1383 1400 TO 1402 PRIS YD 0.425 ZD 0.3*

*379 TO 383 431 TO 438 464 TO 471 480 697 698 738 TO 742 788 TO 795 -*

*821 TO 828 837 853 854 930 TO 934 980 TO 987 1013 TO 1020 1029 1045 1046 -*

*1077 1200 TO 1209 1223 TO 1234 1247 TO 1257 1260 1264 1285 -*

*1375 PRIS YD 0.275 ZD 0.23*

*MEMBER PROPERTY INDIAN*

*386 TO 391 409 TO 412 439 TO 442 485 486 490 744 TO 749 766 768 769 -*

*796 TO 799 842 843 845 936 TO 940 958 960 988 989 1034 1035 1037 -*

*1273 TO 1276 1280 TO 1283 1329 TO 1334 1340 TO 1345 1351 TO 1356 -*

*1370 TO 1373 1384 PRIS YD 0.425 ZD 0.23*

*MEMBER PROPERTY INDIAN*

*419 420 423 429 494 776 777 780 786 849 PRIS YD 0.575 ZD 0.3*

*CONSTANTS*

*MATERIAL CONCRETE ALL*

*SUPPORTS*

*1 TO 6 8 TO 11 22 23 25 47 49 TO 56 59 61 TO 68 101 103 105 334 340 454 456 -*

*458 460 462 467 TO 475 477 478 530 538 TO 542 567 FIXED*

*DEFINE 1893 LOAD*

*ZONE 0.16 RF 3 I 1 SS 1 DM 0.05*

*SELFWEIGHT 1*

*MEMBER WEIGHT*

*191 TO 195 199 TO 201 251 379 TO 383 386 TO 389 409 697 698 738 TO 742 745 -*

*746 TO 747 853 854 1176 TO 1184 1187 1200 TO 1209 1222 TO 1234 1247 1264 1275 -*

*1276 1282 1283 1285 1318 TO 1323 1329 TO 1334 1340 TO 1345 1354 1390 TO 1397 -*

*1399 UNI 10*

*198 202 221 223 252 254 271 386 390 395 409 411 439 440 442 459 744 748 753 -*

*766 768 796 797 799 816 989 991 1008 1055 1103 1104 1107 1109 1263 -*

*1284 UNI 14*

*210 211 222 229 231 TO 235 237 238 240 241 243 TO 250 256 258 260 262 264 -*

*266 268 277 TO 283 292 295 302 391 393 398 399 401 410 412 414 416 -*

*419 TO 423 425 426 428 429 431 TO 438 444 446 448 450 452 457 459 -*

*466 TO 471 480 483 485 486 490 494 699 700 703 704 749 751 755 756 758 767 -*

*769 771 773 776 TO 780 782 783 785 786 788 TO 795 801 803 805 807 809 814 -*

*823 TO 828 837 840 TO 843 845 849 855 856 859 860 1094 1105 1106 1108 1110 -*

*1113 TO 1115 1117 1273 1280 1281 1361 TO 1364 1388 1389 UNI 7*

*930 TO 934 937 TO 940 945 958 TO 960 988 989 1045 1046 1248 TO 1257 -*

*1351 TO 1353 1355 1356 1370 TO 1373 1375 UNI 3*

*386 TO 389 409 744 TO 747 766 UNI 12.75*

*936 TO 939 958 UNI 10.5*

*FLOOR WEIGHT*

*YRANGE 4.9 5.3 FLOAD 5.5*

*YRANGE 8.5 8.9 FLOAD 5.5*

*YRANGE 4.9 5.3 FLOAD 4 XRANGE -0.5 3.6 ZRANGE -0.5 9.5*

*YRANGE 8.5 8.9 FLOAD 4 XRANGE -0.5 3.6 ZRANGE -0.5 9.5*

*YRANGE 4.9 5.3 FLOAD 4 XRANGE 3.2 6.5 ZRANGE 11.5 17*

*YRANGE 8.5 8.9 FLOAD 4 XRANGE 3.2 6.5 ZRANGE 11.5 17*

*YRANGE 4.9 5.3 FLOAD 4 XRANGE 12.2 15.5 ZRANGE 11.5 17*

*YRANGE 8.5 8.9 FLOAD 4 XRANGE 12.2 15.6 ZRANGE 11.5 17*

*YRANGE 4.9 5.3 FLOAD 4 XRANGE 33.1 39.5 ZRANGE 2.5 6.5*

*YRANGE 8.5 8.9 FLOAD 4 XRANGE 33.1 39.5 ZRANGE 2.5 6.5*

*YRANGE 4.9 5.3 FLOAD 3*

*YRANGE 8.5 8.9 FLOAD 3*

*YRANGE 12.2 12.4 FLOAD 1.5*

*LOAD 1 LOAD TYPE EQX*

*1893 LOAD X 1*

*LOAD 2 LOAD TYPE EQZ*

*1893 LOAD Z 1*

*LOAD 3 LOADTYPE Dead TITLE DEAD LOAD*

*SELFWEIGHT Y -1 LIST 120 TO 125 127 TO 130 132 133 135 144 146 TO 153 155 -*

*157 TO 164 185 187 189 191 TO 195 198 TO 202 210 211 221 TO 223 229 -*

*231 TO 235 237 238 240 241 243 TO 252 254 256 258 260 262 264 266 268 271 -*

*276 TO 283 292 295 302 308 TO 313 315 TO 318 320 321 323 332 334 TO 341 343 -*

*345 TO 352 373 375 377 379 TO 383 386 TO 395 398 399 401 TO 405 409 TO 426 -*

*428 TO 459 464 TO 471 480 TO 486 490 491 493 494 496 TO 501 503 TO 506 508 -*

*509 511 520 522 TO 529 531 533 TO 540 561 563 565 685 696 TO 700 703 TO 705 -*

*714 TO 716 729 TO 732 738 TO 742 744 TO 753 755 756 758 TO 762 766 TO 783 -*

*785 TO 816 821 TO 828 837 TO 843 845 846 848 849 851 TO 856 859 TO 861 863 -*

*868 TO 873 875 TO 878 880 881 883 887 889 TO 897 899 TO 906 920 921 923 926 -*

*929 TO 934 936 TO 945 947 948 950 TO 954 958 TO 975 977 TO 1008 1013 TO 1020 -*

*1029 TO 1035 1037 1038 1040 1041 1043 TO 1048 1051 TO 1053 1055 1062 1063 -*

*1074 1075 1077 1082 TO 1119 1164 TO 1172 1174 TO 1184 1187 TO 1196 -*

*1198 TO 1218 1220 TO 1243 1245 TO 1269 1273 TO 1276 1280 TO 1286 -*

*1313 TO 1366 1370 TO 1376*

*MEMBER LOAD*

*191 TO 195 199 TO 201 251 379 TO 383 386 TO 389 409 697 698 738 TO 742 745 -*

*746 TO 747 853 854 1176 TO 1184 1187 1200 TO 1209 1222 TO 1234 1247 1264 1275 -*

*1276 1282 1283 1285 1318 TO 1323 1329 TO 1334 1340 TO 1345 1354 1390 TO 1397 -*

*1399 UNI GY -10*

*198 202 221 223 252 254 271 386 390 395 409 411 439 440 442 459 744 748 753 -*

*766 768 796 797 799 816 989 991 1008 1055 1103 1104 1107 1109 1263 -*

*1284 UNI GY -14*

*210 211 222 229 231 TO 235 237 238 240 241 243 TO 250 256 258 260 262 264 -*

*266 268 277 TO 283 292 295 302 391 393 398 399 401 410 412 414 416 -*

*419 TO 423 425 426 428 429 431 TO 438 444 446 448 450 452 457 459 -*

*466 TO 471 480 483 485 486 490 494 699 700 703 704 749 751 755 756 758 767 -*

*769 771 773 776 TO 780 782 783 785 786 788 TO 795 801 803 805 807 809 814 -*

*823 TO 828 837 840 TO 843 845 849 855 856 859 860 1094 1105 1106 1108 1110 -*

*1113 TO 1115 1117 1273 1280 1281 1361 TO 1364 1388 1389 UNI GY -7*

*930 TO 934 937 TO 940 945 958 TO 960 988 989 1045 1046 1248 TO 1257 -*

*1351 TO 1353 1355 1356 1370 TO 1373 1375 UNI GY -3*

*386 TO 389 409 744 TO 747 766 UNI GY -12.75*

*936 TO 939 958 UNI GY -10.5*

*FLOOR LOAD*

*YRANGE 4.9 5.3 FLOAD -5.5 GY*

*YRANGE 8.5 8.9 FLOAD -5.5 GY*

*YRANGE 4.9 5.3 FLOAD -4 XRANGE -0.5 3.6 ZRANGE -0.5 9.5 GY*

*YRANGE 8.5 8.9 FLOAD -4 XRANGE -0.5 3.6 ZRANGE -0.5 9.5 GY*

*YRANGE 4.9 5.3 FLOAD -4 XRANGE 3.2 6.5 ZRANGE 11.5 17 GY*

*YRANGE 8.5 8.9 FLOAD -4 XRANGE 3.2 6.5 ZRANGE 11.5 17 GY*

*YRANGE 4.9 5.3 FLOAD -4 XRANGE 12.2 15.5 ZRANGE 11.5 17 GY*

*YRANGE 8.5 8.9 FLOAD -4 XRANGE 12.2 15.6 ZRANGE 11.5 17 GY*

*YRANGE 4.9 5.3 FLOAD -4 XRANGE 33.1 39.5 ZRANGE 2.5 6.5 GY*

*YRANGE 8.5 8.9 FLOAD -4 XRANGE 33.1 39.5 ZRANGE 2.5 6.5 GY*

*LOAD 4 LOADTYPE Live TITLE LIVE LOAD*

*FLOOR LOAD*

*YRANGE 4.9 5.3 FLOAD -3 GY*

*YRANGE 8.5 8.9 FLOAD -3 GY*

*YRANGE 12.2 12.4 FLOAD -1.5 GY*

*LOAD COMB 5 COMBINATION LOAD CASE 5*

*3 1.5 4 1.5*

*LOAD COMB 6 COMBINATION LOAD CASE 6*

*3 1.5 1 1.5*

*LOAD COMB 7 COMBINATION LOAD CASE 7*

*3 1.5 1 -1.5*

*LOAD COMB 8 COMBINATION LOAD CASE 8*

*3 1.5 2 1.5*

*LOAD COMB 9 COMBINATION LOAD CASE 9*

*3 1.5 2 -1.5*

*LOAD COMB 10 COMBINATION LOAD CASE 10*

*3 0.9 1 1.5*

*LOAD COMB 11 COMBINATION LOAD CASE 11*

*3 0.9 1 -1.5*

*LOAD COMB 12 COMBINATION LOAD CASE 12*

*3 0.9 2 1.5*

*LOAD COMB 13 COMBINATION LOAD CASE 13*

*3 0.9 2 -1.5*

*LOAD COMB 14 COMBINATION LOAD CASE 14*

*3 1.2 4 1.2 1 1.2*

*LOAD COMB 15 COMBINATION LOAD CASE 15*

*3 1.2 4 1.2 1 -1.2*

*LOAD COMB 16 COMBINATION LOAD CASE 16*

*3 1.2 4 1.2 2 1.2*

*LOAD COMB 17 COMBINATION LOAD CASE 17*

*3 1.2 4 1.2 2 -1.2*

*PERFORM ANALYSIS*

*START CONCRETE DESIGN*

*CODE INDIAN*

*FC 20000 MEMB 120 TO 125 127 TO 130 132 133 135 144 146 TO 153 155 -*

*157 TO 164 185 187 189 191 TO 195 198 TO 202 210 211 221 TO 223 229 -*

*231 TO 235 237 238 240 241 243 TO 252 254 256 258 260 262 264 266 268 271 -*

*276 TO 283 292 295 302 308 TO 313 315 TO 318 320 321 323 332 334 TO 341 343 -*

*345 TO 352 373 375 377 379 TO 383 386 TO 395 398 399 401 TO 405 409 TO 426 -*

*428 TO 459 464 TO 471 480 TO 486 490 491 493 494 496 TO 501 503 TO 506 508 -*

*509 511 520 522 TO 529 531 533 TO 540 561 563 565 685 696 TO 700 703 TO 705 -*

*714 TO 716 729 TO 732 738 TO 742 744 TO 753 755 756 758 TO 762 766 TO 783 -*

*785 TO 816 821 TO 828 837 TO 843 845 846 848 849 851 TO 856 859 TO 861 863 -*

*868 TO 873 875 TO 878 880 881 883 887 889 TO 897 899 TO 906 920 921 923 926 -*

*929 TO 934 936 TO 945 947 948 950 TO 954 958 TO 975 977 TO 1008 1013 TO 1020 -*

*1029 TO 1035 1037 1038 1040 1041 1043 TO 1048 1051 TO 1053 1055 1062 1063 -*

*1074 1075 1077 1082 TO 1119 1164 TO 1172 1174 TO 1184 1187 TO 1196 -*

*1198 TO 1218 1220 TO 1243 1245 TO 1269 1273 TO 1276 1280 TO 1286 -*

*1313 TO 1366 1370 TO 1384*

*FYMAIN 500000 MEMB 120 TO 125 127 TO 130 132 133 135 144 146 TO 153 155 157 -*

*158 TO 164 185 187 189 191 TO 195 198 TO 202 210 211 221 TO 223 229 -*

*231 TO 235 237 238 240 241 243 TO 252 254 256 258 260 262 264 266 268 271 -*

*276 TO 283 292 295 302 308 TO 313 315 TO 318 320 321 323 332 334 TO 341 343 -*

*345 TO 352 373 375 377 379 TO 383 386 TO 395 398 399 401 TO 405 409 TO 426 -*

*428 TO 459 464 TO 471 480 TO 486 490 491 493 494 496 TO 501 503 TO 506 508 -*

*509 511 520 522 TO 529 531 533 TO 540 561 563 565 685 696 TO 700 703 TO 705 -*

*714 TO 716 729 TO 732 738 TO 742 744 TO 753 755 756 758 TO 762 766 TO 783 -*

*785 TO 816 821 TO 828 837 TO 843 845 846 848 849 851 TO 856 859 TO 861 863 -*

*868 TO 873 875 TO 878 880 881 883 887 889 TO 897 899 TO 906 920 921 923 926 -*

*929 TO 934 936 TO 945 947 948 950 TO 954 958 TO 975 977 TO 1008 1013 TO 1020 -*

*1029 TO 1035 1037 1038 1040 1041 1043 TO 1048 1051 TO 1053 1055 1062 1063 -*

*1074 1075 1077 1082 TO 1119 1164 TO 1172 1174 TO 1184 1187 TO 1196 -*

*1198 TO 1218 1220 TO 1243 1245 TO 1269 1273 TO 1276 1280 TO 1286 -*

*1313 TO 1366 1370 TO 1384*

*FYSEC 500000 ALL*

*DESIGN BEAM 191 TO 195 198 TO 202 210 211 221 TO 223 229 231 TO 235 237 238 -*

*240 241 243 TO 252 254 256 258 260 262 264 266 268 271 276 TO 283 292 295 -*

*302 379 TO 383 386 TO 395 398 399 401 TO 405 409 TO 426 428 TO 459 -*

*464 TO 471 480 TO 486 490 491 493 494 685 696 TO 700 703 TO 705 732 -*

*738 TO 742 744 TO 753 755 756 758 TO 762 766 TO 783 785 TO 816 821 TO 828 -*

*837 TO 843 845 846 848 849 851 TO 856 859 TO 861 863 930 TO 934 936 TO 945 -*

*947 948 950 TO 954 958 TO 975 977 TO 1008 1013 TO 1020 1029 TO 1035 1037 -*

*1038 1040 1041 1043 TO 1048 1051 TO 1053 1055 1074 1075 1077 1094 -*

*1103 TO 1119 1176 TO 1184 1187 1200 TO 1209 1222 TO 1234 1247 TO 1257 1260 -*

*1261 TO 1265 1273 TO 1276 1280 TO 1286 1318 TO 1323 1329 TO 1334 1340 TO 1345 -*

*1351 TO 1356 1361 TO 1366 1370 TO 1376 1381 TO 1402*

*DESIGN COLUMN 120 TO 125 127 TO 130 132 133 135 144 146 TO 153 155 -*

*157 TO 164 185 187 189 308 TO 313 315 TO 318 320 321 323 332 334 TO 341 343 -*

*345 TO 352 373 375 377 496 TO 501 503 TO 506 508 509 511 520 522 TO 529 531 -*

*533 TO 540 561 563 565 714 TO 716 729 TO 731 868 TO 873 875 TO 878 880 881 -*

*883 887 889 TO 897 899 TO 906 920 921 923 926 929 1062 1063 1082 TO 1093 -*

*1095 TO 1102 1164 TO 1172 1174 1175 1188 TO 1196 1198 1199 1210 TO 1218 1220 -*

*1221 1235 TO 1243 1245 1246 1258 1259 1266 TO 1269 1313 TO 1317 1324 TO 1328 -*

*1335 TO 1339 1346 TO 1350 1357 TO 1360 1377 TO 1380*

*END CONCRETE DESIGN*

*FINISH*