2440

indus TOWERS

Certificate for Electrical

Date :- 10-Sep-19

I, **3-EE Naresh** from M/s. **Indus In-House Quality AP** , certify that the electrical works for this
Site Name :- **Secunderabad (CB)** , Reference No :- **R/NN-332815** , Indus Id :- **IN-1361734** ,
Site Address :- **Hyderabad** ,
Tower Type :- **RT Pole** , Opco Name :- **Airtel** Op ID:- **HY5956**

was checked and found OK in all respect with consideration of all checkpoints as per check list furnished, by TSP.

Electrical works doneby :- **Osps Telecom Services Pvt Ltd** (name of TSP).

Summary of site observations
Following were the observations / deviations observed during electrical inspection of the above site.
For status of rectification refer inspection reports

Stage	Inspection Date	Revisit if any
E1	**25-Aug-19**	**30-Aug-19**

Key observations during 1st inspection:
1. Site Offered without work completion
2.
3.
4.
5.
6.
7.
8.
9.

Thanks & regards,
Signatures :-

Prepared By :- Shaik Masthan Basha

Verified By :- M Sangameshwar

Certified By :- BVLN Murthy

Indus In-House Quality AP Representatives

HO ID Number	AP-IH-0919-2440

Certificate with out Indus In-House Quality AP HO seal, hologram sign and ID number is invalid

ASSUMPTIONS

1.Due to access issue number of columns and their position is considered as per ground level, which shall have to be confirmed at below terrace level by **INDUS TOWERS LIMITED** prior to erection of tower/pole foundation. If any discrepancy is found, shall be brought to our notice.

2.Steel is considered as per owner's information, which shall has be to cross checked by **INDUS TOWERS LIMITED.**

DESIGN & ENGINEERING GROUP,

a division of BEPL Live eXcellence

BUILDING STABILITY & FOUNDATION DESIGN REPORT FOR PROPOSED ROOF TOP 12m TOWER

CLIENT : M/s INDUS TOWER LIMITED HYDERABAD

OPERATOR : AIRTEL

SITE ID : IN-1361734

SITE NAME : SECUNDERABAD (CB)

SITE ADDRESS : 33-148,4TH ROAD, SHAKTHI NAGAR, RK PURAM, MALAKAGIGIRI, SEC BAD, CELL-7780522291

OBJECTIVE : DESIGN CHECKING AND FOUNDATION DESIGN FOR PROPOSED 12m TOWER AS PER THE SPECIFICATION SUBMITTED BY M/s INDUS TOWERS LIMITED HYDERABAD AND THE BUILDING DETAILS COLLECTED FROM SITE.

BASIS OF CALCULATION: THE ANALYSIS, DESIGN CHECKING AND FOUNDATION DESIGN OF THE BUILDING IS ACCOMPLISHED BY STAAD PRO V8i SOFTWARE. DEAD LOAD, LIVE LOAD AND WIND LOAD ARE CALCULATED AS PER IS:875(PART-1), IS:875(PART-2) & IS:875(PART-3) RESPECTIVELY.

STRUCTURAL CONSULTANT

BEPL Live eXcellence

DESIGN & ENGINEERING GROUP,
a division of BONDADA ENGINEERING PRIVATE LIMITED
PLOT.NO.37, ASHOK MANOJ NAGAR, KAPRA,
HYDERABAD-500056

Client	M/s INDUS TOWERS LIMITED, HYDERABAD			Rev	00
Project	Building feasibility study and foundation design for RTT (WIND SPEED 160KMPH)	Prep by	KAMALA PRIYA	Date:	01.07.2019
Site name	SECUNDERABAD (CB)	App by	O.V.K	Date:	01.07.2019

CONTENTS:

ATTACHMENTS:

Attachment 1:	Foundation drawing
Attachment 2:	STAAD input and output

INTRODUCTION

The existing building belongs to **: IN-1361734, 33-148, 4TH ROAD, SHAKTHI NAGAR, RK PURAM, MALAKAGIGIRI, SEC BAD, CELL-7780522291,** is an R.C. Framed Structure with infill masonry walls. The building comprises of **3 floors (G+2=10.16m)** the concerned authorities of **M/s INDUS TOWERS LIMITED.** Proposed to install Tele Communication **12m TOWER** and **ODBTS** on existing building.

In view of the above, a detailed study was carried out to check the feasibility.

As a part of the study, building inspection and structural analysis, the test reports are attached.

This report in brief, summarizes the outcome of the studies carried out and inferences thereon.

PHYSICAL OBSERVATIONS

A visual inspection of the building is carried out and dimensions of the concerned columns/ spans were cross checked against the existing drawings to confirm the correctness. The top floor investigated to find a suitable place for placing the **TOWER** and **ODBTS**. Following are physical observations made consequent to the inspection of the building.

a. No signs of settlement of foundation are observed in any part of the building.
b. No significant distress features are observed in any of the R.C members.

1.0 Photos

Photo No : **IN-1361734-1**

Photo No : **IN-1361734-2**

Photo No : **IN-1361734-3**

Photo No : **IN-1361734-4**

2.0 Photos

Photo No : **IN-1361734-5**

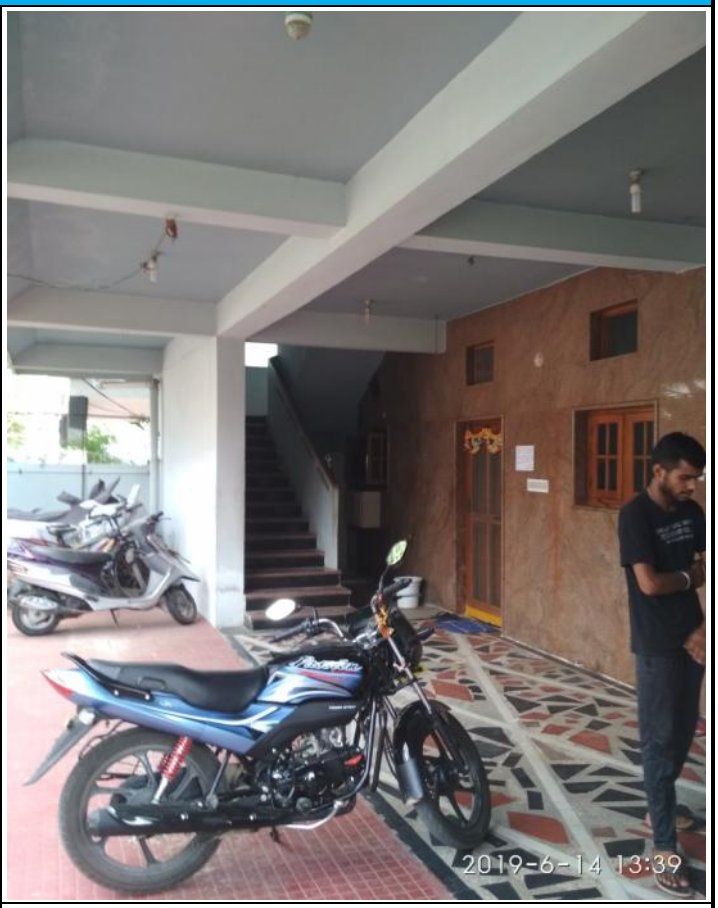


Photo No : **IN-1361734-6**

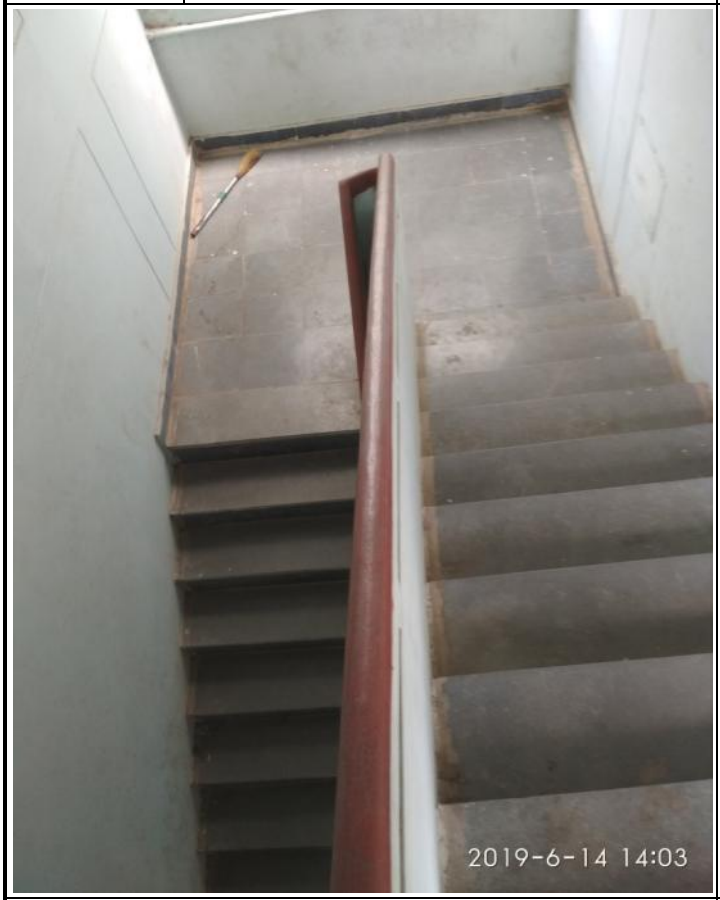


Photo No : **IN-1361734-7**

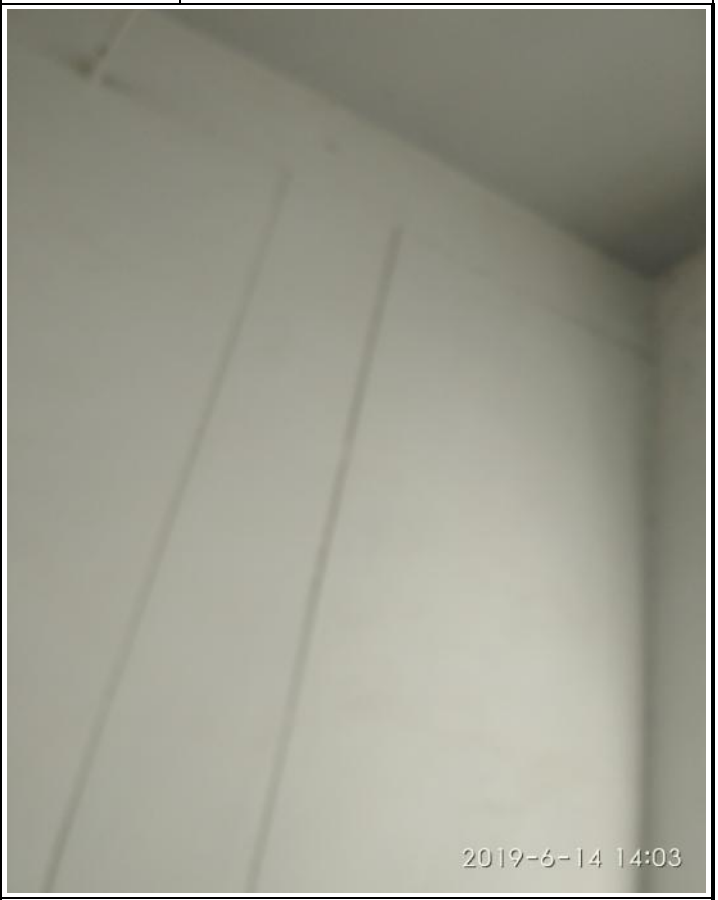


Photo No : **IN-1361734-8**

3.0 Photos

Photo No : **IN-1361734-9**

Photo No : **IN-1361734-10**

Photo No : **IN-1361734-11**

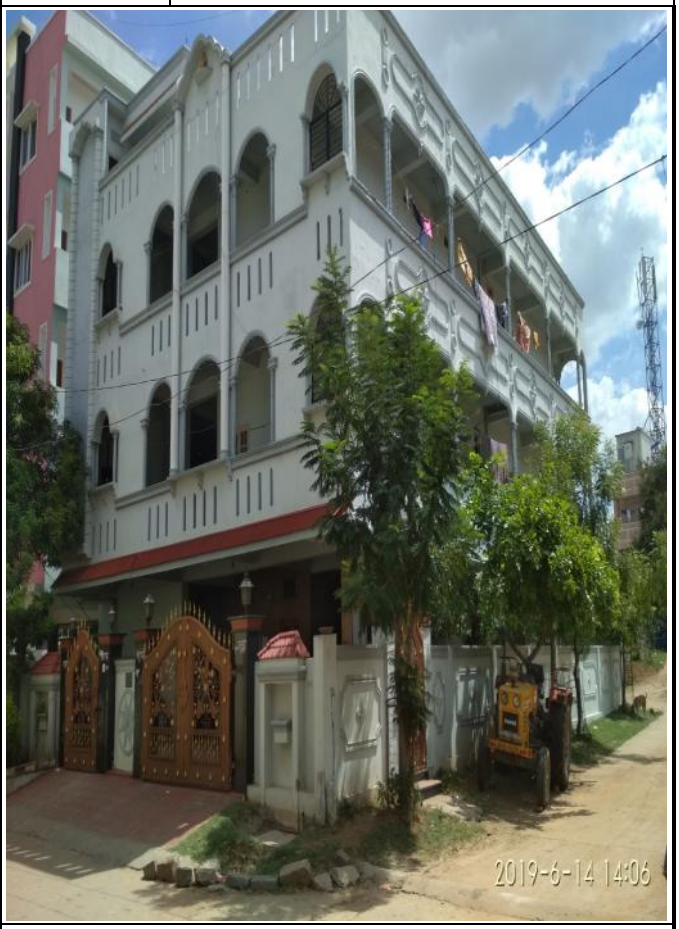


Photo No : **IN-1361734-12**

DESIGN & ENGINEERING GROUP,

a division of BEPL Live Excellence

STABILITY CERTIFICATE

This is to certify that the **(G+2=10.16m)** Building at **IN-1361734, 33-148, 4TH ROAD, SHAKTHI NAGAR, RK PURAM, MALAKAGIGIRI, SEC BAD, CELL-7780522291,** has **ADEQUATE** strength to withstand the complete loads of **12m TOWER** and **ODBTS,** proposed by **M/s INDUS TOWERS LIMITED**. The **12m TOWER** and **ODBTS** loads have been considered as per the information supplied **M/s INDUS TOWERS LIMITED.**

NOTE(S):-

1. For analysis of columns/beams in the building the area of steel is considered as per owner information. This area of steel shall have to be cross checked by M/S INDUS TOWERS LIMITED. If any discrepancy is found then it shall be brought to our notice for reviewing . In case if the client fails to inform any such discrepancy then BEPL will not be responsible for any future consequences.
2. The analysis of the building is carried out based on the data obtained at the time of survey, data provided by client and certain assumptions (wherever needed), hence the conclusion of this report is subjective.

EXCLUSION(S):-

1. Design check of building foundation.
2. Design check of building for earthquake forces.

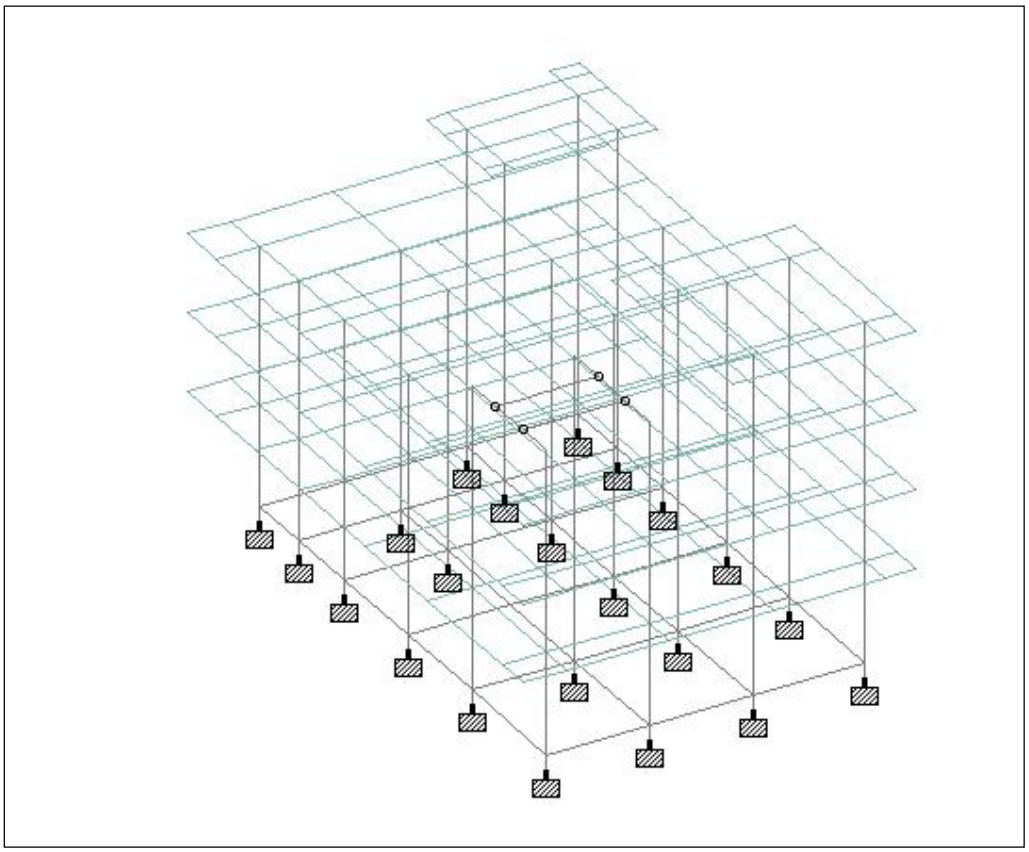
For **BONDADA ENGINEERING PVT LTD.**

Authorized Signatory

DESIGN & ENGINEERING GROUP,

a division of BEPL Live Excellence

BUILDING STAAD REPORT



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     3. ENGINEER DATE 15.06.19
     4. ENGINEER NAME KAMALA
     5. CHECKER NAME O.V.K
     6. APPROVED NAME O.V.K
     7. END JOB INFORMATION
     8. INPUT WIDTH 79
     9. UNIT METER KN
    10. JOINT COORDINATES
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   163. 450 217 227 226 216; 451 216 226 229 224; 452 223 214 216 224
   164. 453 214 215 217 216
   165. ELEMENT PROPERTY
   166. 139 TO 173 254 TO 288 369 TO 403 408 416 TO 424 445 TO 453 THICKNESS 0.12
   167. DEFINE MATERIAL START
   168. ISOTROPIC CONCRETE
   169. E 2.17185E+007
   170. POISSON 0.17
   171. DENSITY 25
   172. ALPHA 1E-005
   173. DAMP 0.05
   174. END DEFINE MATERIAL
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   176. 1 2 7 TO 10 15 TO 44 174 177 178 181 TO 195 289 292 293 296 TO 310 -
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   178. 3 TO 6 11 TO 14 175 176 179 180 290 291 294 295 404 TO 407 PRIS YD 0.33 ZD
0.26
   179. 110 118 134 227 233 249 342 348 364 PRIS YD 0.35 ZD 0.26
   180. MEMBER PROPERTY AMERICAN
   181. 45 TO 109 111 TO 117 119 TO 133 135 TO 138 196 TO 226 228 TO 232 234 TO
248 -
   182. 250 TO 253 311 TO 341 343 TO 347 349 TO 363 365 TO 368 409 410 412 TO 415
-
   183. 425 TO 428 433 TO 444 PRIS YD 0.42 ZD 0.26
   184. 454 TO 457 PRIS YD 0.457 ZD 0.457
   185. MEMBER PROPERTY AMERICAN
   186. 458 TO 463 466 467 470 TO 473 PRIS YD 0.61 ZD 0.457
   187. CONSTANTS
   188. BETA 90 MEMB 15 TO 44 181 TO 195 296 TO 310
   189. MATERIAL CONCRETE ALL
   190. SUPPORTS
   191. 25 27 TO 37 39 TO 48 FIXED
   192. MEMBER RELEASE
   193. 466 467 START MY MZ
   194. 470 471 END MY MZ
   195. LOAD 1 LOADTYPE DEAD  TITLE DEAD
   196. MEMBER LOAD
   197. 46 87 TO 91 UNI GY -15.29
   198. 58 TO 60 78 TO 81 UNI GY -12.23
   199. 47 TO 57 83 TO 86 92 TO 94 113 115 UNI GY -6.38
   200. MEMBER LOAD
   201. 62 105 TO 109 133 197 222 TO 226 248 UNI GY -11.79
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   202. MEMBER LOAD
   203. 61 74 TO 76 95 TO 99 117 196 209 TO 216 232 UNI GY -9.44
   204. 63 TO 73 100 TO 104 110 TO 112 114 116 118 198 TO 208 217 TO 221 227 TO
231 -
   205. 233 UNI GY -4.92
   206. 341 UNI GY -11.97
   207. 323 326 336 UNI GY -9.57
   208. 312 315 337 UNI GY -8.65
   209. 332 UNI GY -6.92
   210. JOINT LOAD
   211. 87 97 99 143 146 191 194 FY -1.56
   212. 89 90 96 97 137 138 142 143 185 186 190 191 200 201 207 208 220 221 226 -
   213. 227 FY -5.82
   214. 89 91 95 96 137 139 141 142 185 187 189 190 FY -5.39
   215. 88 91 94 95 136 139 TO 141 184 187 TO 189 FY -5.32
   216. 88 92 94 98 136 140 144 145 184 188 192 193 218 222 223 225 FY -2.28
   217. 76 92 124 144 172 192 FY -2.58
   218. 76 77 82 83 124 125 130 131 172 173 178 179 202 203 210 211 FY -3.52
   219. 77 78 83 84 125 126 131 132 173 174 179 180 FY -4.11
   220. 78 TO 80 84 TO 86 126 TO 128 132 TO 134 174 TO 176 180 TO 182 FY -5.7
   221. 80 81 86 87 128 129 134 135 176 177 182 183 218 219 223 224 FY -6.76
   222. 81 87 98 99 129 135 145 146 177 183 193 194 219 224 228 229 FY -1.82
   223. 204 206 FY -1.
   224. 202 204 210 212 FY -1.58
   225. 203 209 211 213 FY -0.76
   226. 200 207 212 213 FY -1.14
   227. 220 225 226 229 FY -2.12
   228. 205 206 208 209 228 FY -1.59
   229. 90 93 138 147 FY -3.22
   230. 186 195 FY -2.37
   231. 82 93 130 147 FY -5.23
   232. 178 195 FY -2.25
   233. ELEMENT LOAD
   234. 378 PR GY -2.39
   235. SELFWEIGHT Y -1 LIST 1 TO 410 412 TO 463 466 467 470 TO 473
   236. ELEMENT LOAD
   237. 453 PR GY -21.97 -1.915 -0.975 1.915 2.191
   238. JOINT LOAD
   239. 215 FY -9.5
   240. LOAD 2 LOADTYPE LIVE REDUCIBLE TITLE LIVE
   241. ELEMENT LOAD
   242. 139 TO 173 254 TO 288 PR GY -2
   243. 369 TO 379 381 TO 403 PR GY -1.5
   244. LOAD 3 LOADTYPE NONE  TITLE LOAD CASE 3 W F 1
   245. JOINT LOAD
   246. 244 FX 11.24 FY 93.68 FZ 5.383
   247. 242 FX 10.76 FY -101.04 FZ -5.85
   248. 243 FX 10.47 FY 93.55 FZ -5.266
   249. 245 FX 11.62 FY -101.12 FZ 5.73
   250. LOAD 4 LOADTYPE NONE  TITLE LOAD CASE 4 W F 2
   251. JOINT LOAD
   252. 242 FX -5.383 FY 93.68 FZ 11.24
   253. 243 FX 5.85 FY -101.04 FZ 10.76
   254. 244 FX 5.266 FY 93.55 FZ 10.47
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255. 245 FX -5.73 FY -101.12 FZ 11.62
256. LOAD 5 LOADTYPE NONE  TITLE LOAD CASE 5 W F 3
257. JOINT LOAD
258. 243 FX -11.24 FY 93.68 FZ -5.383
259. 245 FX -10.76 FY -101.04 FZ 5.85
260. 242 FX -10.47 FY 93.55 FZ 5.266
261. 244 FX -11.62 FY -101.12 FZ -5.73
262. LOAD 6 LOADTYPE NONE  TITLE LOAD CASE 6 W F 4
263. JOINT LOAD
264. 245 FX 5.383 FY 93.68 FZ -11.24

265. 244 FX -5.85 FY -101.04 FZ -10.76
266. 243 FX -5.266 FY 93.55 FZ -10.47
267. 242 FX 5.73 FY -101.12 FZ -11.62
268. LOAD 7 LOADTYPE NONE  TITLE LOAD CASE 7 W DIA 1
269. JOINT LOAD
270. 244 FX 11.51 FY 142.4 FZ 13.36
271. 242 FX 4.88 FY -4.09 FZ 4.71
272. 245 FX 4.11 FY -3 FZ 3.1
273. 243 FX 13.07 FY -150.237 FZ 12.39
274. LOAD 8 LOADTYPE NONE  TITLE LOAD CASE 8 W DIA 2
275. JOINT LOAD
276. 242 FX -11.51 FY 142.4 FZ 13.36
277. 243 FX -4.88 FY -4.09 FZ 4.71
278. 244 FX -4.11 FY -3 FZ 3.1
279. 245 FX -13.07 FY -150.237 FZ 12.39
280. LOAD 9 LOADTYPE NONE  TITLE LOAD CASE 9 W DIA 3
281. JOINT LOAD
282. 243 FX -11.51 FY 142.4 FZ -13.36
283. 245 FX -4.88 FY -4.09 FZ -4.71
284. 242 FX -4.11 FY -3 FZ -3.1
285. 244 FX -13.07 FY -150.237 FZ -12.39
286. LOAD 10 LOADTYPE NONE  TITLE LOAD CASE 10 W DIA 4
287. JOINT LOAD
288. 245 FX 11.51 FY 142.4 FZ -13.36
289. 244 FX 4.88 FY -4.09 FZ -4.71
290. 243 FX 4.11 FY -3 FZ -3.1
291. 242 FX 13.07 FY -150.237 FZ -12.39
292. LOAD COMB 11 1.5(DL+LL)
293. 1 1.5 2 1.5
294. LOAD COMB 12 1.5(DL+WF 1)
295. 1 1.5 3 1.5
296. LOAD COMB 13 1.5(DL+WF 2)
297. 1 1.5 4 1.5
298. LOAD COMB 14 1.5(DL+WF 3)
299. 1 1.5 5 1.5
300. LOAD COMB 15 1.5(DL+WF 4)
301. 1 1.5 6 1.5
302. LOAD COMB 16 1.5(DL+DL 1)
303. 1 1.5 7 1.5
304. LOAD COMB 17 1.5(DL+DL 2)
305. 1 1.5 8 1.5
306. LOAD COMB 18 1.5(DL+DL 3)
307. 1 1.5 9 1.5
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308. LOAD COMB 19 1.5(DL+DL 4)
309. 1 1.5 10 1.5
310. LOAD COMB 20 1.2(DL+LL+WF 1)
311. 1 1.2 2 1.2 3 1.2
312. LOAD COMB 21 1.2(DL+LL+WF 2)
313. 1 1.2 2 1.2 4 1.2
314. LOAD COMB 22 1.2(DL+LL+WF 3)
315. 1 1.2 2 1.2 5 1.2
316. LOAD COMB 23 1.2(DL+LL+WF 4)
317. 1 1.2 2 1.2 6 1.2
318. LOAD COMB 24 1.2(DL+LL+DL 1)
319. 1 1.2 2 1.2 7 1.2
320. LOAD COMB 25 1.2(DL+LL+DL 2)
321. 1 1.2 2 1.2 8 1.2
322. LOAD COMB 26 1.2(DL+LL+DL 3)
323. 1 1.2 2 1.2 9 1.2
324. LOAD COMB 27 1.2(DL+LL+DL 4)
325. 1 1.2 2 1.2 10 1.2
326. PERFORM ANALYSIS
327. LOAD LIST 11 TO 27
328. START CONCRETE DESIGN
329. CODE INDIAN
330. ELY 0.85 MEMB 1 TO 44 174 TO 195 289 TO 310 404 TO 407 429 TO 432
331. ELZ 0.85 MEMB 1 TO 44 174 TO 195 289 TO 310 404 TO 407 429 TO 432
332. FC 20000 MEMB 45 TO 173 196 TO 288 311 TO 403 408 TO 410 412 TO 428 -
333. 433 TO 463 466 467 470 TO 473
334. FC 25000 MEMB 1 TO 44 174 TO 195 289 TO 310 404 TO 407 429 TO 432
335. FYMAIN 415000 ALL
336. FYSEC 415000 ALL
337. DESIGN BEAM 458 TO 463 466 467 470 TO 473
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B E A M N O. 458 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 1425.0 mm SIZE: 457.0 mm X 610.0 mm COVER: 25.0 mm

SUMMARY OF REINF. AREA (Sq.mm)

SECTION	0.0 mm	356.2 mm	712.5 mm	1068.7 mm	1425.0 mm
TOP REINF.	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)
BOTTOM REINF.	541.96 (Sq. mm)	541.96 (Sq. mm)	541.96 (Sq. mm)	541.96 (Sq. mm)	634.70 (Sq. mm)

SUMMARY OF PROVIDED REINF. AREA

SECTION	0.0 mm	356.2 mm	712.5 mm	1068.7 mm	1425.0 mm

TOP REINF.	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)
BOTTOM REINF.	5-12í 1 layer(s)	5-12í 1 layer(s)	5-12í 1 layer(s)	5-12í 1 layer(s)	6-12í 1 layer(s)
SHEAR REINF.	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c

SHEAR DESIGN RESULTS AT DISTANCE d (EFFECTIVE DEPTH) FROM FACE OF THE SUPPORT

SHEAR DESIGN RESULTS AT 803.5 mm AWAY FROM START SUPPORT
VY = 134.74 MX = -0.38 LD= 18
Provide 2 Legged 8í @ 190 mm c/c

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B E A M N O. 459 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 1425.0 mm SIZE: 457.0 mm X 610.0 mm COVER: 25.0 mm

SUMMARY OF REINF. AREA (Sq.mm)

SECTION	0.0 mm	356.2 mm	712.5 mm	1068.7 mm	1425.0 mm
TOP REINF.	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)
BOTTOM REINF.	541.96 (Sq. mm)	541.96 (Sq. mm)	541.96 (Sq. mm)	541.96 (Sq. mm)	635.14 (Sq. mm)

SUMMARY OF PROVIDED REINF. AREA

SECTION	0.0 mm	356.2 mm	712.5 mm	1068.7 mm	1425.0 mm
TOP REINF.	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)
BOTTOM REINF.	5-12í 1 layer(s)	5-12í 1 layer(s)	5-12í 1 layer(s)	5-12í 1 layer(s)	6-12í 1 layer(s)
SHEAR REINF.	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c

SHEAR DESIGN RESULTS AT DISTANCE d (EFFECTIVE DEPTH) FROM FACE OF THE SUPPORT

SHEAR DESIGN RESULTS AT 803.5 mm AWAY FROM START SUPPORT
VY = 134.75 MX = 0.16 LD= 19
Provide 2 Legged 8í @ 190 mm c/c

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B E A M N O. 460 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 1600.0 mm SIZE: 457.0 mm X 610.0 mm COVER: 25.0 mm

SUMMARY OF REINF. AREA (Sq.mm)

SECTION	0.0 mm	400.0 mm	800.0 mm	1200.0 mm	1600.0 mm
TOP REINF.	542.89 (Sq. mm)	542.89 (Sq. mm)	0.00 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)
BOTTOM REINF.	593.81 (Sq. mm)	540.09 (Sq. mm)	540.09 (Sq. mm)	540.09 (Sq. mm)	590.83 (Sq. mm)

SUMMARY OF PROVIDED REINF. AREA

SECTION	0.0 mm	400.0 mm	800.0 mm	1200.0 mm	1600.0 mm
TOP REINF.	7-10í 1 layer(s)	7-10í 1 layer(s)	2-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)
BOTTOM REINF.	3-16í 1 layer(s)	3-16í 1 layer(s)	3-16í 1 layer(s)	3-16í 1 layer(s)	3-16í 1 layer(s)
SHEAR REINF.	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c

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B E A M N O. 461 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 1600.0 mm SIZE: 457.0 mm X 610.0 mm COVER: 25.0 mm

SUMMARY OF REINF. AREA (Sq.mm)

SECTION	0.0 mm	400.0 mm	800.0 mm	1200.0 mm	1600.0 mm
TOP REINF.	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)
BOTTOM REINF.	594.61 (Sq. mm)	540.09 (Sq. mm)	540.09 (Sq. mm)	540.09 (Sq. mm)	596.44 (Sq. mm)

SUMMARY OF PROVIDED REINF. AREA

SECTION	0.0 mm	400.0 mm	800.0 mm	1200.0 mm	1600.0 mm
TOP REINF.	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)
BOTTOM REINF.	3-16í 1 layer(s)	3-16í 1 layer(s)	3-16í 1 layer(s)	3-16í 1 layer(s)	3-16í 1 layer(s)
SHEAR REINF.	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c

B E A M N O. 462 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 1425.0 mm SIZE: 457.0 mm X 610.0 mm COVER: 25.0 mm

SUMMARY OF REINF. AREA (Sq.mm)

SECTION	0.0 mm	356.3 mm	712.5 mm	1068.8 mm	1425.0 mm
TOP REINF.	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)
BOTTOM REINF.	629.20 (Sq. mm)	541.96 (Sq. mm)	541.96 (Sq. mm)	541.96 (Sq. mm)	541.96 (Sq. mm)

SUMMARY OF PROVIDED REINF. AREA

SECTION	0.0 mm	356.3 mm	712.5 mm	1068.8 mm	1425.0 mm
TOP REINF.	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)
BOTTOM REINF.	6-12í 1 layer(s)	5-12í 1 layer(s)	5-12í 1 layer(s)	5-12í 1 layer(s)	5-12í 1 layer(s)
SHEAR REINF.	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c

SHEAR DESIGN RESULTS AT DISTANCE d (EFFECTIVE DEPTH) FROM FACE OF THE SUPPORT

SHEAR DESIGN RESULTS AT 803.5 mm AWAY FROM END SUPPORT
VY = -135.82 MX = -0.71 LD= 17
Provide 2 Legged 8í @ 190 mm c/c

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B E A M N O. 463 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 1425.0 mm SIZE: 457.0 mm X 610.0 mm COVER: 25.0 mm

SUMMARY OF REINF. AREA (Sq.mm)

SECTION	0.0 mm	356.3 mm	712.5 mm	1068.8 mm	1425.0 mm
TOP REINF.	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)
BOTTOM REINF.	638.24 (Sq. mm)	541.96 (Sq. mm)	541.96 (Sq. mm)	541.96 (Sq. mm)	541.96 (Sq. mm)

SUMMARY OF PROVIDED REINF. AREA

SECTION	0.0 mm	356.3 mm	712.5 mm	1068.8 mm	1425.0 mm
TOP REINF.	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)
BOTTOM REINF.	6-12í 1 layer(s)	5-12í 1 layer(s)	5-12í 1 layer(s)	5-12í 1 layer(s)	5-12í 1 layer(s)
SHEAR REINF.	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c

SHEAR DESIGN RESULTS AT DISTANCE d (EFFECTIVE DEPTH) FROM FACE OF THE SUPPORT

SHEAR DESIGN RESULTS AT 803.5 mm AWAY FROM END SUPPORT
VY = -135.68 MX = 0.08 LD= 16
Provide 2 Legged 8í @ 190 mm c/c

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B E A M N O. 466 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 950.0 mm SIZE: 457.0 mm X 610.0 mm COVER: 25.0 mm

SUMMARY OF REINF. AREA (Sq.mm)

SECTION	0.0 mm	237.5 mm	475.0 mm	712.5 mm	950.0 mm
TOP REINF.	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	548.89 (Sq. mm)	731.03 (Sq. mm)
BOTTOM REINF.	535.87 (Sq. mm)	535.87 (Sq. mm)	535.87 (Sq. mm)	719.91 (Sq. mm)	952.05 (Sq. mm)

SUMMARY OF PROVIDED REINF. AREA

SECTION	0.0 mm	237.5 mm	475.0 mm	712.5 mm	950.0 mm
TOP REINF.	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	10-10í 1 layer(s)
BOTTOM REINF.	3-25í 1 layer(s)	3-25í 1 layer(s)	3-25í 1 layer(s)	3-25í 1 layer(s)	3-25í 1 layer(s)
SHEAR REINF.	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c

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B E A M N O. 467 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 950.0 mm SIZE: 457.0 mm X 610.0 mm COVER: 25.0 mm

SUMMARY OF REINF. AREA (Sq.mm)

SECTION	0.0 mm	237.5 mm	475.0 mm	712.5 mm	950.0 mm
TOP REINF.	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	556.84 (Sq. mm)	739.81 (Sq. mm)
BOTTOM REINF.	538.21 (Sq. mm)	538.21 (Sq. mm)	538.21 (Sq. mm)	706.17 (Sq. mm)	937.13 (Sq. mm)

SUMMARY OF PROVIDED REINF. AREA

SECTION	0.0 mm	237.5 mm	475.0 mm	712.5 mm	950.0 mm
TOP REINF.	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	8-10í 1 layer(s)	10-10í 1 layer(s)
BOTTOM REINF.	3-20í 1 layer(s)	3-20í 1 layer(s)	3-20í 1 layer(s)	3-20í 1 layer(s)	3-20í 1 layer(s)
SHEAR	2 legged 8í	2 legged 8í	2 legged 8í	2 legged 8í	2 legged 8í

REINF. @ 190 mm c/c @ 190 mm c/c @ 190 mm c/c @ 190 mm c/c @ 190 mm c/c

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B E A M N O. 470 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 950.0 mm SIZE: 457.0 mm X 610.0 mm COVER: 25.0 mm

SUMMARY OF REINF. AREA (Sq.mm)

SECTION	0.0 mm	237.5 mm	475.0 mm	712.5 mm	950.0 mm
TOP REINF.	741.01 (Sq. mm)	558.00 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)
BOTTOM REINF.	941.96 (Sq. mm)	710.80 (Sq. mm)	538.21 (Sq. mm)	538.21 (Sq. mm)	538.21 (Sq. mm)

SUMMARY OF PROVIDED REINF. AREA

SECTION	0.0 mm	237.5 mm	475.0 mm	712.5 mm	950.0 mm
TOP REINF.	10-10í 1 layer(s)	8-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)
BOTTOM REINF.	3-20í 1 layer(s)	3-20í 1 layer(s)	3-20í 1 layer(s)	3-20í 1 layer(s)	3-20í 1 layer(s)
SHEAR REINF.	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c

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B E A M N O. 471 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 950.0 mm SIZE: 457.0 mm X 610.0 mm COVER: 25.0 mm

SUMMARY OF REINF. AREA (Sq.mm)

SECTION	0.0 mm	237.5 mm	475.0 mm	712.5 mm	950.0 mm
TOP REINF.	727.30 (Sq. mm)	545.27 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)	542.89 (Sq. mm)
BOTTOM REINF.	951.66 (Sq. mm)	719.54 (Sq. mm)	535.87 (Sq. mm)	535.87 (Sq. mm)	535.87 (Sq. mm)

SUMMARY OF PROVIDED REINF. AREA

SECTION	0.0 mm	237.5 mm	475.0 mm	712.5 mm	950.0 mm
TOP REINF.	10-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)	7-10í 1 layer(s)
BOTTOM REINF.	3-25í 1 layer(s)	3-25í 1 layer(s)	3-25í 1 layer(s)	3-25í 1 layer(s)	3-25í 1 layer(s)
SHEAR REINF.	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c

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B E A M N O. 472 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 1600.0 mm SIZE: 457.0 mm X 610.0 mm COVER: 25.0 mm

SUMMARY OF REINF. AREA (Sq.mm)

SECTION	0.0 mm	400.0 mm	800.0 mm	1200.0 mm	1600.0 mm
TOP REINF.	731.03 (Sq. mm)	596.49 (Sq. mm)	592.19 (Sq. mm)	601.12 (Sq. mm)	741.01 (Sq. mm)
BOTTOM REINF.	952.05 (Sq. mm)	830.90 (Sq. mm)	832.86 (Sq. mm)	828.27 (Sq. mm)	946.80 (Sq. mm)

SUMMARY OF PROVIDED REINF. AREA

SECTION	0.0 mm	400.0 mm	800.0 mm	1200.0 mm	1600.0 mm
TOP REINF.	10-10í 1 layer(s)	8-10í 1 layer(s)	8-10í 1 layer(s)	8-10í 1 layer(s)	10-10í 1 layer(s)
BOTTOM REINF.	3-25í 1 layer(s)	3-25í 1 layer(s)	3-25í 1 layer(s)	3-25í 1 layer(s)	3-25í 1 layer(s)
SHEAR REINF.	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c

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B E A M N O. 473 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 1600.0 mm SIZE: 457.0 mm X 610.0 mm COVER: 25.0 mm

SUMMARY OF REINF. AREA (Sq.mm)

SECTION	0.0 mm	400.0 mm	800.0 mm	1200.0 mm	1600.0 mm
TOP REINF.	739.81 (Sq. mm)	599.94 (Sq. mm)	593.27 (Sq. mm)	597.57 (Sq. mm)	727.30 (Sq. mm)
BOTTOM REINF.	941.94 (Sq. mm)	830.61 (Sq. mm)	835.21 (Sq. mm)	830.53 (Sq. mm)	951.66 (Sq. mm)

SUMMARY OF PROVIDED REINF. AREA

SECTION	0.0 mm	400.0 mm	800.0 mm	1200.0 mm	1600.0 mm
TOP REINF.	10-10í 1 layer(s)	8-10í 1 layer(s)	8-10í 1 layer(s)	8-10í 1 layer(s)	10-10í 1 layer(s)
BOTTOM REINF.	3-25í 1 layer(s)	3-25í 1 layer(s)	3-25í 1 layer(s)	3-25í 1 layer(s)	3-25í 1 layer(s)
SHEAR REINF.	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c	2 legged 8í @ 190 mm c/c

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338. DESIGN COLUMN 1 TO 44 174 TO 195 289 TO 310 404 TO 407 429 TO 432 454 TO 457

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C O L U M N N O. 1 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 25 SHORT COLUMN
REQD. STEEL AREA : 542.23 Sq.mm.
REQD. CONCRETE AREA: 103457.77 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

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Puz :   1332.67   Muz1 :     67.73   Muy1 :     42.13

INTERACTION RATIO: 0.28 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    25 Puz :   1441.43   Muz :     80.98   Muy :     48.81   IR: 0.24
================================================================================

         C O L U M N   N O.      2  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:     1  SHORT COLUMN
REQD. STEEL AREA   :      531.72 Sq.mm.
REQD. CONCRETE AREA:   103468.27 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1329.52   Muz1 :     68.22   Muy1 :     42.43

INTERACTION RATIO: 0.28 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    16
END JOINT:    49 Puz :   1441.43   Muz :     90.10   Muy :     53.40   IR: 0.38
================================================================================
         C O L U M N   N O.      3  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    27  SHORT COLUMN
REQD. STEEL AREA   :      892.32 Sq.mm.
REQD. CONCRETE AREA:    84907.68 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (1.05%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1232.95   Muz1 :     33.47   Muy1 :     25.49

INTERACTION RATIO: 0.91 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
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-------------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    27 Puz :   1236.68   Muz :     34.40   Muy :     26.06   IR: 0.87
================================================================================

         C O L U M N   N O.      4  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:     3  SHORT COLUMN
REQD. STEEL AREA   :      638.77 Sq.mm.
REQD. CONCRETE AREA:    85161.23 Sq.mm.
MAIN REINFORCEMENT : Provide   4 - 16 dia. (0.94%,    804.25 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 255 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-------------------------------------------------------------
Puz :   1156.88   Muz1 :     31.71   Muy1 :     24.33

INTERACTION RATIO: 0.87 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-------------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:     3 Puz :   1206.52   Muz :     39.29   Muy :     29.63   IR: 0.60
================================================================================

         C O L U M N   N O.      5  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    28  SHORT COLUMN
REQD. STEEL AREA   :      594.83 Sq.mm.
REQD. CONCRETE AREA:    85205.16 Sq.mm.
MAIN REINFORCEMENT : Provide   4 - 16 dia. (0.94%,    804.25 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 255 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-------------------------------------------------------------
Puz :   1143.70   Muz1 :     35.96   Muy1 :     27.61

INTERACTION RATIO: 0.62 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-------------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:     4 Puz :   1206.52   Muz :     45.18   Muy :     33.96   IR: 0.49
================================================================================
```

C O L U M N N O. 6 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 3500.0 mm CROSS SECTION: 260.0 mm X 330.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 4 SHORT COLUMN
REQD. STEEL AREA : 540.27 Sq.mm.
REQD. CONCRETE AREA: 85259.73 Sq.mm.
MAIN REINFORCEMENT : Provide 4 - 16 dia. (0.94%, 804.25 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 255 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1127.33 Muz1 : 40.27 Muy1 : 30.92

INTERACTION RATIO: 0.45 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 4 Puz : 1206.52 Muz : 51.11 Muy : 38.33 IR: 0.33
==========

C O L U M N N O. 7 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 29 SHORT COLUMN
REQD. STEEL AREA : 314.22 Sq.mm.
REQD. CONCRETE AREA: 103685.78 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1264.27 Muz1 : 66.03 Muy1 : 41.53

INTERACTION RATIO: 0.23 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 19
END JOINT: 5 Puz : 1441.43 Muz : 87.96 Muy : 52.82 IR: 0.22
==========

C O L U M N N O. 8 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 3500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 5 SHORT COLUMN
REQD. STEEL AREA : 268.65 Sq.mm.
REQD. CONCRETE AREA: 103731.35 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1250.59 Muz1 : 61.31 Muy1 : 38.73

INTERACTION RATIO: 0.24 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 18
END JOINT: 53 Puz : 1441.43 Muz : 84.90 Muy : 50.91 IR: 0.25
==========

C O L U M N N O. 9 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 30 SHORT COLUMN

REQD. STEEL AREA : 388.40 Sq.mm.
REQD. CONCRETE AREA: 103611.60 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1286.52 Muz1 : 70.35 Muy1 : 43.82

INTERACTION RATIO: 0.23 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 30 Puz : 1441.43 Muz : 91.00 Muy : 54.29 IR: 0.19
==========

C O L U M N N O. 10 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 3500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 6 SHORT COLUMN

```
REQD. STEEL AREA    :      344.09 Sq.mm.
REQD. CONCRETE AREA:   103655.91 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1273.23   Muz1 :     68.27   Muy1 :     42.76

INTERACTION RATIO: 0.22 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    13
END JOINT:    54 Puz :   1441.43   Muz :     88.17   Muy :     52.95   IR: 0.28
   ============================================================================

         C O L U M N   N O.     11  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    31  SHORT COLUMN
REQD. STEEL AREA    :      370.43 Sq.mm.
REQD. CONCRETE AREA:    46303.79 Sq.mm.
MAIN REINFORCEMENT : Provide   4 - 12 dia. (0.53%,    452.39 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1076.38   Muz1 :     47.24   Muy1 :     36.20

INTERACTION RATIO: 0.27 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    31 Puz :   1100.97   Muz :     53.27   Muy :     40.14   IR: 0.23
   ============================================================================

         C O L U M N   N O.     12  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:     7  SHORT COLUMN
REQD. STEEL AREA    :      311.22 Sq.mm.
REQD. CONCRETE AREA:    38902.25 Sq.mm.
MAIN REINFORCEMENT : Provide   4 - 12 dia. (0.53%,    452.39 Sq.mm.)
                     (Equally distributed)
```

TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1058.62 Muz1 : 46.92 Muy1 : 36.05

INTERACTION RATIO: 0.25 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 7 Puz : 1100.97 Muz : 55.85 Muy : 41.96 IR: 0.21
STAAD SPACE -- PAGE NO. 27
==========

C O L U M N N O. 13 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 500.0 mm CROSS SECTION: 260.0 mm X 330.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 32 SHORT COLUMN
REQD. STEEL AREA : 383.74 Sq.mm.
REQD. CONCRETE AREA: 47967.26 Sq.mm.
MAIN REINFORCEMENT : Provide 4 - 12 dia. (0.53%, 452.39 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1080.37 Muz1 : 47.06 Muy1 : 36.08

INTERACTION RATIO: 0.27 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 32 Puz : 1100.97 Muz : 52.52 Muy : 39.64 IR: 0.24
==========

C O L U M N N O. 14 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 3500.0 mm CROSS SECTION: 260.0 mm X 330.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 8 SHORT COLUMN

REQD. STEEL AREA : 312.09 Sq.mm.
REQD. CONCRETE AREA: 39010.68 Sq.mm.
MAIN REINFORCEMENT : Provide 4 - 12 dia. (0.53%, 452.39 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

```
SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1058.88   Muz1 :     46.95   Muy1 :     36.07

INTERACTION RATIO: 0.25 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:     8 Puz :   1100.97   Muz :     55.83   Muy :     41.94   IR: 0.21
   ============================================================================

         C O L U M N   N O.     15  D E S I G N   R E S U L T S

      M25                   Fe415 (Main)              Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    33  SHORT COLUMN
REQD. STEEL AREA    :      443.85 Sq.mm.
REQD. CONCRETE AREA:   103556.15 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1303.16   Muz1 :     70.70   Muy1 :     43.88

INTERACTION RATIO: 0.24 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    33 Puz :   1441.43   Muz :     88.43   Muy :     52.60   IR: 0.20
============================================================================

         C O L U M N   N O.     16  D E S I G N   R E S U L T S

      M25                   Fe415 (Main)              Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:     9  SHORT COLUMN
REQD. STEEL AREA    :      374.22 Sq.mm.
REQD. CONCRETE AREA:   103625.78 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1282.27   Muz1 :     69.81   Muy1 :     43.61
```

```
INTERACTION RATIO: 0.23 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    18
END JOINT:    57 Puz :   1441.43   Muz :     89.63   Muy :     53.94   IR: 0.29
===============================================================================

         C O L U M N   N O.     17  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    34  SHORT COLUMN
REQD. STEEL AREA   :      467.52 Sq.mm.
REQD. CONCRETE AREA:   103532.48 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1310.26   Muz1 :     70.31   Muy1 :     43.67

INTERACTION RATIO: 0.24 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    13
END JOINT:    10 Puz :   1441.43   Muz :     90.94   Muy :     54.12   IR: 0.29
===============================================================================

         C O L U M N   N O.     18  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    10  SHORT COLUMN
REQD. STEEL AREA   :      374.81 Sq.mm.
REQD. CONCRETE AREA:   103625.19 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1282.44   Muz1 :     69.84   Muy1 :     43.62

INTERACTION RATIO: 0.32 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
```

```
WORST LOAD CASE:    15
END JOINT:    58 Puz :   1441.43   Muz :     89.04   Muy :     53.53   IR: 0.39
================================================================================

         C O L U M N   N O.     19  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    35  SHORT COLUMN
REQD. STEEL AREA    :      425.52 Sq.mm.
REQD. CONCRETE AREA:   103574.48 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
--------------------------------------------------------------
Puz :   1297.66   Muz1 :     70.86   Muy1 :     43.95

INTERACTION RATIO: 0.23 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
--------------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    35 Puz :   1441.43   Muz :     89.64   Muy :     53.19   IR: 0.20
================================================================================

         C O L U M N   N O.     20  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    11  SHORT COLUMN
REQD. STEEL AREA    :      353.55 Sq.mm.
REQD. CONCRETE AREA:   103646.45 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
--------------------------------------------------------------
Puz :   1276.07   Muz1 :     68.82   Muy1 :     43.07

INTERACTION RATIO: 0.22 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
--------------------------------------------------------------
WORST LOAD CASE:    19
END JOINT:    59 Puz :   1441.43   Muz :     88.43   Muy :     53.11   IR: 0.21
================================================================================
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================================================================================

         C O L U M N   N O.     21  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    36  SHORT COLUMN
REQD. STEEL AREA   :      450.62 Sq.mm.
REQD. CONCRETE AREA:   103549.38 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1305.19   Muz1 :     70.61   Muy1 :     43.83

INTERACTION RATIO: 0.24 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    36 Puz :   1441.43   Muz :     87.96   Muy :     52.38   IR: 0.20
================================================================================

         C O L U M N   N O.     22  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    12  SHORT COLUMN
REQD. STEEL AREA   :      368.85 Sq.mm.
REQD. CONCRETE AREA:   103631.15 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1280.66   Muz1 :     69.59   Muy1 :     43.50

INTERACTION RATIO: 0.23 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    19
END JOINT:    12 Puz :   1441.43   Muz :     90.31   Muy :     54.27   IR: 0.21
================================================================================

         C O L U M N   N O.     23  D E S I G N   R E S U L T S
```

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 37 SHORT COLUMN
REQD. STEEL AREA : 588.02 Sq.mm.
REQD. CONCRETE AREA: 103411.98 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1346.41 Muz1 : 65.19 Muy1 : 40.56

INTERACTION RATIO: 0.32 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 12
END JOINT: 13 Puz : 1441.43 Muz : 85.25 Muy : 51.03 IR: 0.58
==========

C O L U M N N O. 24 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 3500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 13 SHORT COLUMN
REQD. STEEL AREA : 492.60 Sq.mm.
REQD. CONCRETE AREA: 103507.41 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1317.78 Muz1 : 69.67 Muy1 : 43.31

INTERACTION RATIO: 0.26 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 18
END JOINT: 13 Puz : 1441.43 Muz : 90.41 Muy : 53.63 IR: 0.32
==========

C O L U M N N O. 25 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

```
** GUIDING LOAD CASE:   11 END JOINT:    39  SHORT COLUMN
REQD. STEEL AREA    :      574.79 Sq.mm.
REQD. CONCRETE AREA:   103425.20 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1342.44   Muz1 :     66.00   Muy1 :     41.06

INTERACTION RATIO: 0.30 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    14
END JOINT:    15 Puz :   1441.43   Muz :     86.05   Muy :     51.43   IR: 0.29
================================================================================

         C O L U M N   N O.     26  D E S I G N   R E S U L T S

      M25                     Fe415 (Main)              Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    15  SHORT COLUMN
REQD. STEEL AREA    :      477.19 Sq.mm.
REQD. CONCRETE AREA:   103522.81 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1313.16   Muz1 :     70.09   Muy1 :     43.55

INTERACTION RATIO: 0.25 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    12
END JOINT:    63 Puz :   1441.43   Muz :     91.16   Muy :     54.64   IR: 0.29
================================================================================

         C O L U M N   N O.     27  D E S I G N   R E S U L T S

      M25                     Fe415 (Main)              Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    40  SHORT COLUMN
REQD. STEEL AREA    :      487.41 Sq.mm.
REQD. CONCRETE AREA:   103512.59 Sq.mm.
```

```
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1316.22   Muz1 :     69.82   Muy1 :     43.39

INTERACTION RATIO: 0.25 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    40 Puz :   1441.43   Muz :     85.33   Muy :     51.07   IR: 0.22
==========================================================================

         C O L U M N   N O.     28  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)               Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    16  SHORT COLUMN
REQD. STEEL AREA   :      398.47 Sq.mm.
REQD. CONCRETE AREA:   103601.52 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1289.54   Muz1 :     70.63   Muy1 :     43.89

INTERACTION RATIO: 0.23 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    16 Puz :   1441.43   Muz :     90.83   Muy :     54.00   IR: 0.19
==========================================================================

         C O L U M N   N O.     29  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)               Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    41  SHORT COLUMN
REQD. STEEL AREA   :      579.78 Sq.mm.
REQD. CONCRETE AREA:   103420.22 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c
```

```
SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1343.93   Muz1 :     65.70   Muy1 :     40.87

INTERACTION RATIO: 0.31 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    41 Puz :   1441.43   Muz :     77.63   Muy :     47.01   IR: 0.26
===============================================================================

         C O L U M N   N O.     30  D E S I G N   R E S U L T S

      M25                   Fe415 (Main)              Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    17  SHORT COLUMN
REQD. STEEL AREA    :      495.37 Sq.mm.
REQD. CONCRETE AREA:   103504.63 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1318.61   Muz1 :     69.58   Muy1 :     43.26

INTERACTION RATIO: 0.26 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    18
END JOINT:    17 Puz :   1441.43   Muz :     84.97   Muy :     50.89   IR: 0.24
===============================================================================

         C O L U M N   N O.     31  D E S I G N   R E S U L T S

      M25                   Fe415 (Main)              Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    42  SHORT COLUMN
REQD. STEEL AREA    :      602.58 Sq.mm.
REQD. CONCRETE AREA:   103397.42 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1350.77   Muz1 :     64.23   Muy1 :     39.96
```

```
INTERACTION RATIO: 0.33 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    15
END JOINT:    18 Puz :   1441.43   Muz :     80.03   Muy :     48.31   IR: 0.28
==========================================================================

         C O L U M N   N O.     32  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    18  SHORT COLUMN
REQD. STEEL AREA   :      503.87 Sq.mm.
REQD. CONCRETE AREA:   103496.13 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1321.16   Muz1 :     69.31   Muy1 :     43.09

INTERACTION RATIO: 0.26 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    13
END JOINT:    66 Puz :   1441.43   Muz :     91.16   Muy :     54.63   IR: 0.27
==========================================================================

         C O L U M N   N O.     33  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    43  SHORT COLUMN
REQD. STEEL AREA   :      672.69 Sq.mm.
REQD. CONCRETE AREA:   103327.31 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1371.81   Muz1 :     58.58   Muy1 :     36.46

INTERACTION RATIO: 0.43 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
```

```
WORST LOAD CASE:    11
END JOINT:    43 Puz :   1441.43   Muz :     67.71   Muy :     41.33   IR: 0.36
================================================================================

         C O L U M N   N O.     34  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    19  SHORT COLUMN
REQD. STEEL AREA   :      591.88 Sq.mm.
REQD. CONCRETE AREA:   103408.12 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1347.56   Muz1 :     64.94   Muy1 :     40.40

INTERACTION RATIO: 0.32 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    19 Puz :   1441.43   Muz :     76.48   Muy :     46.37   IR: 0.27
================================================================================

         C O L U M N   N O.     35  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    44  SHORT COLUMN
REQD. STEEL AREA   :      718.75 Sq.mm.
REQD. CONCRETE AREA:   103281.26 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1385.62   Muz1 :     53.98   Muy1 :     33.60

INTERACTION RATIO: 0.54 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    44 Puz :   1441.43   Muz :     61.85   Muy :     37.82   IR: 0.44
================================================================================
```

C O L U M N N O. 36 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 3500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 20 SHORT COLUMN
REQD. STEEL AREA : 618.85 Sq.mm.
REQD. CONCRETE AREA: 103381.16 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1355.65 Muz1 : 63.07 Muy1 : 39.24

INTERACTION RATIO: 0.35 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 20 Puz : 1441.43 Muz : 73.77 Muy : 44.84 IR: 0.30
==========

C O L U M N N O. 37 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 17 END JOINT: 45 SHORT COLUMN
REQD. STEEL AREA : 538.41 Sq.mm.
REQD. CONCRETE AREA: 103461.59 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1331.52 Muz1 : 67.91 Muy1 : 42.24

INTERACTION RATIO: 0.28 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 19
END JOINT: 21 Puz : 1441.43 Muz : 91.10 Muy : 54.54 IR: 0.34
==========

C O L U M N N O. 38 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 3500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 17 END JOINT: 21 SHORT COLUMN
REQD. STEEL AREA : 475.88 Sq.mm.
REQD. CONCRETE AREA: 103524.12 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1312.76 Muz1 : 70.12 Muy1 : 43.56

INTERACTION RATIO: 0.25 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 16
END JOINT: 21 Puz : 1441.43 Muz : 91.00 Muy : 54.30 IR: 0.24
==========

C O L U M N N O. 39 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 16 END JOINT: 46 SHORT COLUMN
REQD. STEEL AREA : 519.24 Sq.mm.
REQD. CONCRETE AREA: 103480.76 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1325.77 Muz1 : 68.74 Muy1 : 42.75

INTERACTION RATIO: 0.27 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 18
END JOINT: 22 Puz : 1441.43 Muz : 91.12 Muy : 54.56 IR: 0.23
==========

C O L U M N N O. 40 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 3500.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 16 END JOINT: 22 SHORT COLUMN
REQD. STEEL AREA : 438.02 Sq.mm.

```
REQD. CONCRETE AREA:   103561.98 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1301.40   Muz1 :     70.76   Muy1 :     43.91

INTERACTION RATIO: 0.24 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    18
END JOINT:    70 Puz :   1441.43   Muz :     89.18   Muy :     53.63   IR: 0.27
   ============================================================================

         C O L U M N   N O.     41  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)               Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    47  SHORT COLUMN
REQD. STEEL AREA   :      704.34 Sq.mm.
REQD. CONCRETE AREA:   103295.66 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1381.30   Muz1 :     55.52   Muy1 :     34.57

INTERACTION RATIO: 0.50 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    47 Puz :   1441.43   Muz :     63.70   Muy :     38.98   IR: 0.41
============================================================================

         C O L U M N   N O.     42  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)               Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    23  SHORT COLUMN
REQD. STEEL AREA   :      620.56 Sq.mm.
REQD. CONCRETE AREA:   103379.44 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c
```

```
SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1356.17   Muz1 :     62.95   Muy1 :     39.16

INTERACTION RATIO: 0.35 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    23 Puz :   1441.43   Muz :     73.59   Muy :     44.73   IR: 0.30
===============================================================================

         C O L U M N   N O.     43  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)               Fe415 (Sec.)

LENGTH:   500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    48  SHORT COLUMN
REQD. STEEL AREA    :      703.08 Sq.mm.
REQD. CONCRETE AREA:   103296.91 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1380.93   Muz1 :     55.65   Muy1 :     34.65

INTERACTION RATIO: 0.49 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    24 Puz :   1441.43   Muz :     64.05   Muy :     39.18   IR: 0.48
===============================================================================

         C O L U M N   N O.     44  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)               Fe415 (Sec.)

LENGTH:  3500.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    24  SHORT COLUMN
REQD. STEEL AREA    :      632.00 Sq.mm.
REQD. CONCRETE AREA:   103368.00 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1359.60   Muz1 :     62.07   Muy1 :     38.61
```

INTERACTION RATIO: 0.37 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 24 Puz : 1441.43 Muz : 72.37 Muy : 44.04 IR: 0.31
==========

C O L U M N N O. 174 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 49 SHORT COLUMN
REQD. STEEL AREA : 598.89 Sq.mm.
REQD. CONCRETE AREA: 103401.11 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1349.67 Muz1 : 77.73 Muy1 : 47.68

INTERACTION RATIO: 1.00 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 49 Puz : 1441.43 Muz : 90.87 Muy : 54.50 IR: 0.86
==========

C O L U M N N O. 175 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 330.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 51 SHORT COLUMN
REQD. STEEL AREA : 967.86 Sq.mm.
REQD. CONCRETE AREA: 84832.14 Sq.mm.
MAIN REINFORCEMENT : Provide 4 - 20 dia. (1.46%, 1256.64 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 260 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1255.61 Muz1 : 60.44 Muy1 : 45.08

INTERACTION RATIO: 0.99 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

```
-------------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    51 Puz :   1342.24   Muz :     76.93   Muy :     55.59   IR: 0.74
   ============================================================================

         C O L U M N   N O.    176  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    52  SHORT COLUMN
REQD. STEEL AREA   :      365.80 Sq.mm.
REQD. CONCRETE AREA:    45725.57 Sq.mm.
MAIN REINFORCEMENT : Provide   4 - 12 dia. (0.53%,    452.39 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-------------------------------------------------------------
Puz :   1074.99   Muz1 :     47.28   Muy1 :     36.23

INTERACTION RATIO: 0.73 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-------------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    52 Puz :   1100.97   Muz :     53.52   Muy :     40.30   IR: 0.63
============================================================================

         C O L U M N   N O.    177  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    53  SHORT COLUMN
REQD. STEEL AREA   :      170.35 Sq.mm.
REQD. CONCRETE AREA:   103829.65 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-------------------------------------------------------------
Puz :   1221.11   Muz1 :     45.80   Muy1 :     29.15

INTERACTION RATIO: 0.30 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-------------------------------------------------------------
WORST LOAD CASE:    18
END JOINT:    53 Puz :   1441.43   Muz :     78.55   Muy :     46.65   IR: 0.26
```

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================================================================================

         C O L U M N   N O.    178  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    54  SHORT COLUMN


REQD. STEEL AREA   :      209.72 Sq.mm.
REQD. CONCRETE AREA:   103790.27 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1232.92   Muz1 :     52.89   Muy1 :     33.59

INTERACTION RATIO: 0.73 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    13
END JOINT:    54 Puz :   1441.43   Muz :     81.16   Muy :     48.24   IR: 0.50
   ============================================================================

         C O L U M N   N O.    179  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    55  SHORT COLUMN
REQD. STEEL AREA   :      222.76 Sq.mm.
REQD. CONCRETE AREA:    27845.44 Sq.mm.
MAIN REINFORCEMENT : Provide   4 - 12 dia. (0.53%,    452.39 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1032.08   Muz1 :     41.39   Muy1 :     32.05

INTERACTION RATIO: 0.26 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    19
END JOINT:    55 Puz :   1100.97   Muz :     50.35   Muy :     38.00   IR: 0.27
================================================================================
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================================================================================

         C O L U M N   N O.    180  D E S I G N   R E S U L T S

      M25                     Fe415 (Main)              Fe415 (Sec.)

 LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

 ** GUIDING LOAD CASE:   11 END JOINT:    56  SHORT COLUMN
REQD. STEEL AREA   :      221.14 Sq.mm.
 REQD. CONCRETE AREA:    27642.13 Sq.mm.
 MAIN REINFORCEMENT : Provide   4 - 12 dia. (0.53%,    452.39 Sq.mm.)
                      (Equally distributed)
 TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

 SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
 ----------------------------------------------------------
 Puz :   1031.59   Muz1 :     41.23   Muy1 :     31.93

 INTERACTION RATIO: 0.26 (as per Cl. 39.6, IS456:2000)

 SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
 ----------------------------------------------------------
 WORST LOAD CASE:    25
 END JOINT:    56 Puz :   1100.97   Muz :     48.64   Muy :     36.63   IR: 0.23
 ================================================================================

         C O L U M N   N O.    181  D E S I G N   R E S U L T S

      M25                     Fe415 (Main)              Fe415 (Sec.)

 LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

 ** GUIDING LOAD CASE:   11 END JOINT:    57  SHORT COLUMN
 REQD. STEEL AREA   :      230.76 Sq.mm.
 REQD. CONCRETE AREA:   103769.24 Sq.mm.
 MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                      (Equally distributed)
 TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

 SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
 ----------------------------------------------------------
 Puz :   1239.23   Muz1 :     56.22   Muy1 :     35.64

 INTERACTION RATIO: 0.44 (as per Cl. 39.6, IS456:2000)

 SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
 ----------------------------------------------------------
 WORST LOAD CASE:    15
 END JOINT:    57 Puz :   1441.43   Muz :     82.68   Muy :     49.37   IR: 0.40
 ================================================================================
```

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================================================================================

         C O L U M N   N O.    182  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    58  SHORT COLUMN
REQD. STEEL AREA    :      231.74 Sq.mm.
REQD. CONCRETE AREA:   103768.26 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1239.52   Muz1 :     56.36   Muy1 :     35.73

INTERACTION RATIO: 0.81 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:    58 Puz :   1441.43   Muz :     85.95   Muy :     51.65   IR: 0.55
================================================================================

         C O L U M N   N O.    183  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    59  SHORT COLUMN
REQD. STEEL AREA    :      218.54 Sq.mm.
REQD. CONCRETE AREA:   103781.45 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1235.56   Muz1 :     54.33   Muy1 :     34.48

INTERACTION RATIO: 0.29 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    19
END JOINT:    59 Puz :   1441.43   Muz :     81.61   Muy :     48.59   IR: 0.27

================================================================================

         C O L U M N   N O.    184  D E S I G N   R E S U L T S
```

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 60 SHORT COLUMN
REQD. STEEL AREA : 222.75 Sq.mm.
REQD. CONCRETE AREA: 103777.26 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1236.82 Muz1 : 54.99 Muy1 : 34.88

INTERACTION RATIO: 0.25 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 19
END JOINT: 110 Puz : 1441.43 Muz : 82.27 Muy : 49.08 IR: 0.21

C O L U M N N O. 185 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 61 SHORT COLUMN
REQD. STEEL AREA : 308.17 Sq.mm.
REQD. CONCRETE AREA: 103691.83 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1262.45 Muz1 : 65.49 Muy1 : 41.22

INTERACTION RATIO: 0.33 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 18
END JOINT: 111 Puz : 1441.43 Muz : 87.17 Muy : 52.39 IR: 0.40

C O L U M N N O. 186 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

```
** GUIDING LOAD CASE:   11 END JOINT:    63  SHORT COLUMN
REQD. STEEL AREA   :      296.66 Sq.mm.
REQD. CONCRETE AREA:   103703.34 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1259.00   Muz1 :     64.39   Muy1 :     40.56

INTERACTION RATIO: 0.51 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    19
END JOINT:   112 Puz :   1441.43   Muz :     85.64   Muy :     51.43   IR: 0.48
==========================================================================

         C O L U M N   N O.    187  D E S I G N   R E S U L T S

      M25                     Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    64  SHORT COLUMN
REQD. STEEL AREA   :      244.85 Sq.mm.
REQD. CONCRETE AREA:   103755.16 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1243.45   Muz1 :     58.26   Muy1 :     36.89

INTERACTION RATIO: 0.25 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    19
END JOINT:   113 Puz :   1441.43   Muz :     83.52   Muy :     49.95   IR: 0.25
==========================================================================

         C O L U M N   N O.    188  D E S I G N   R E S U L T S

      M25                     Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   18 END JOINT:    65  SHORT COLUMN
```

```
REQD. STEEL AREA    :      347.80 Sq.mm.
REQD. CONCRETE AREA:   103652.20 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1274.34   Muz1 :     68.50   Muy1 :     42.88

INTERACTION RATIO: 0.27 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    16
END JOINT:    65 Puz :   1441.43   Muz :     84.34   Muy :     50.53   IR: 0.34
==========================================================================
         C O L U M N   N O.    189  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   19 END JOINT:    66  SHORT COLUMN
REQD. STEEL AREA    :      339.98 Sq.mm.
REQD. CONCRETE AREA:   103660.02 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1271.99   Muz1 :     68.01   Muy1 :     42.61

INTERACTION RATIO: 0.29 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    17
END JOINT:   115 Puz :   1441.43   Muz :     84.18   Muy :     50.41   IR: 0.39
==========================================================================

         C O L U M N   N O.    190  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    67  SHORT COLUMN
REQD. STEEL AREA    :      439.25 Sq.mm.
REQD. CONCRETE AREA:   103560.76 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
```

TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1301.77 Muz1 : 70.75 Muy1 : 43.90

INTERACTION RATIO: 0.24 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 67 Puz : 1441.43 Muz : 88.74 Muy : 52.75 IR: 0.20
==========

C O L U M N N O. 191 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 68 SHORT COLUMN
REQD. STEEL AREA : 450.65 Sq.mm.
REQD. CONCRETE AREA: 103549.35 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1305.20 Muz1 : 70.61 Muy1 : 43.83

INTERACTION RATIO: 0.24 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 19
END JOINT: 117 Puz : 1441.43 Muz : 90.76 Muy : 53.94 IR: 0.21
==========

C O L U M N N O. 192 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 17 END JOINT: 69 SHORT COLUMN
REQD. STEEL AREA : 340.06 Sq.mm.
REQD. CONCRETE AREA: 103659.95 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

```
Puz :   1272.02   Muz1 :     68.02   Muy1 :     42.61

INTERACTION RATIO: 0.22 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    12
END JOINT:   118 Puz :   1441.43   Muz :     87.82   Muy :     52.74   IR: 0.36
==============================================================================

         C O L U M N   N O.    193  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   16 END JOINT:    70  SHORT COLUMN
REQD. STEEL AREA   :      312.30 Sq.mm.
REQD. CONCRETE AREA:   103687.70 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1263.69   Muz1 :     65.86   Muy1 :     41.43

INTERACTION RATIO: 0.23 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    18
END JOINT:    70 Puz :   1441.43   Muz :     81.85   Muy :     48.76   IR: 0.45
   ============================================================================

         C O L U M N   N O.    194  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:    71  SHORT COLUMN
REQD. STEEL AREA   :      465.21 Sq.mm.
REQD. CONCRETE AREA:   103534.79 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1309.56   Muz1 :     70.36   Muy1 :     43.70

INTERACTION RATIO: 0.25 (as per Cl. 39.6, IS456:2000)
```

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 14
END JOINT: 120 Puz : 1441.43 Muz : 90.56 Muy : 53.76 IR: 0.22
==========

C O L U M N N O. 195 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 72 SHORT COLUMN
REQD. STEEL AREA : 473.00 Sq.mm.
REQD. CONCRETE AREA: 103527.00 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1311.90 Muz1 : 70.19 Muy1 : 43.60

INTERACTION RATIO: 0.25 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 72 Puz : 1441.43 Muz : 86.39 Muy : 51.60 IR: 0.21
==========

C O L U M N N O. 289 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 148 SHORT COLUMN
REQD. STEEL AREA : 1126.18 Sq.mm.
REQD. CONCRETE AREA: 102873.82 Sq.mm.
MAIN REINFORCEMENT : Provide 4 - 20 dia. (1.21%, 1256.64 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 260 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1507.85 Muz1 : 85.03 Muy1 : 50.66

INTERACTION RATIO: 0.99 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 148 Puz : 1546.99 Muz : 98.54 Muy : 56.38 IR: 0.88

```
================================================================================

         C O L U M N   N O.    290  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:   101  SHORT COLUMN
REQD. STEEL AREA    :      926.07 Sq.mm.
REQD. CONCRETE AREA:    84873.93 Sq.mm.
MAIN REINFORCEMENT : Provide   4 - 20 dia. (1.46%,   1256.64 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 260 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1243.07   Muz1 :     62.85   Muy1 :     46.96

INTERACTION RATIO: 0.99 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    11
END JOINT:   101 Puz :   1342.24   Muz :     84.29   Muy :     61.10   IR: 0.76
================================================================================

         C O L U M N   N O.    291  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:   102  SHORT COLUMN
REQD. STEEL AREA    :      197.79 Sq.mm.
REQD. CONCRETE AREA:    24723.33 Sq.mm.
MAIN REINFORCEMENT : Provide   4 - 12 dia. (0.53%,    452.39 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1024.59   Muz1 :     38.77   Muy1 :     30.08

INTERACTION RATIO: 0.91 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    17
END JOINT:   102 Puz :   1100.97   Muz :     49.14   Muy :     37.04   IR: 0.72

================================================================================

         C O L U M N   N O.    292  D E S I G N   R E S U L T S
```

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 15 END JOINT: 151 SHORT COLUMN
REQD. STEEL AREA : 208.05 Sq.mm.
REQD. CONCRETE AREA: 103791.95 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1232.41 Muz1 : 23.89 Muy1 : 15.33

INTERACTION RATIO: 0.98 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 15
END JOINT: 151 Puz : 1441.43 Muz : 62.06 Muy : 37.04 IR: 0.39
==========

C O L U M N N O. 293 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 17 END JOINT: 152 SHORT COLUMN
REQD. STEEL AREA : 399.39 Sq.mm.
REQD. CONCRETE AREA: 103600.61 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1289.82 Muz1 : 35.96 Muy1 : 22.51

INTERACTION RATIO: 0.98 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 13
END JOINT: 152 Puz : 1441.43 Muz : 63.25 Muy : 37.72 IR: 0.58
==========

C O L U M N N O. 294 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 330.0 mm COVER: 40.0 mm

```
** GUIDING LOAD CASE:   11 END JOINT:   105  SHORT COLUMN
REQD. STEEL AREA   :      126.77 Sq.mm.
REQD. CONCRETE AREA:    15845.96 Sq.mm.
MAIN REINFORCEMENT : Provide   4 - 12 dia. (0.53%,    452.39 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1003.28   Muz1 :     28.64   Muy1 :     22.30

INTERACTION RATIO: 0.32 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    17
END JOINT:   153 Puz :   1100.97   Muz :     39.59   Muy :     29.80   IR: 0.38
==========================================================================

         C O L U M N   N O.    295  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:   106  SHORT COLUMN
REQD. STEEL AREA   :      125.10 Sq.mm.
REQD. CONCRETE AREA:    15637.18 Sq.mm.
MAIN REINFORCEMENT : Provide   4 - 12 dia. (0.53%,    452.39 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1002.78   Muz1 :     28.35   Muy1 :     22.07

INTERACTION RATIO: 0.28 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    17
END JOINT:   154 Puz :   1100.97   Muz :     39.89   Muy :     30.03   IR: 0.31
==========================================================================

         C O L U M N   N O.    296  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   15 END JOINT:   155  SHORT COLUMN

REQD. STEEL AREA   :      360.92 Sq.mm.
```

```
REQD. CONCRETE AREA:   103639.09 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1278.27   Muz1 :     37.23   Muy1 :     23.33

INTERACTION RATIO: 0.99 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    15
END JOINT:   155 Puz :   1441.43   Muz :     66.50   Muy :     39.55   IR: 0.57
   ================================================================================

         C O L U M N   N O.    297  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)               Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   18 END JOINT:   156  SHORT COLUMN
REQD. STEEL AREA   :      449.09 Sq.mm.
REQD. CONCRETE AREA:   103550.91 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
----------------------------------------------------------
Puz :   1304.73   Muz1 :     40.88   Muy1 :     25.41

INTERACTION RATIO: 0.99 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
----------------------------------------------------------
WORST LOAD CASE:    18
END JOINT:   156 Puz :   1441.43   Muz :     65.46   Muy :     38.98   IR: 0.62
================================================================================

         C O L U M N   N O.    298  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)               Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   19 END JOINT:   157  SHORT COLUMN
REQD. STEEL AREA   :      107.79 Sq.mm.
REQD. CONCRETE AREA:   103892.20 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c
```

```
SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1202.34   Muz1 :     21.51   Muy1 :     13.91

INTERACTION RATIO: 0.99 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    19
END JOINT:   157 Puz :   1441.43   Muz :     65.04   Muy :     38.74   IR: 0.34
===============================================================================

         C O L U M N   N O.    299  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:   110  SHORT COLUMN
REQD. STEEL AREA   :       81.30 Sq.mm.
REQD. CONCRETE AREA:   103918.70 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1194.39   Muz1 :     25.00   Muy1 :     16.12

INTERACTION RATIO: 0.48 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    17
END JOINT:   158 Puz :   1441.43   Muz :     64.88   Muy :     38.65   IR: 0.32
   ============================================================================

         C O L U M N   N O.    300  D E S I G N   R E S U L T S

      M25                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   18 END JOINT:   159  SHORT COLUMN
REQD. STEEL AREA   :      198.46 Sq.mm.
REQD. CONCRETE AREA:   103801.54 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1229.54   Muz1 :     35.37   Muy1 :     22.48
```

INTERACTION RATIO: 1.00 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 18
END JOINT: 111 Puz : 1441.43 Muz : 73.91 Muy : 43.80 IR: 0.50
==========

C O L U M N N O. 301 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 19 END JOINT: 160 SHORT COLUMN

REQD. STEEL AREA : 429.56 Sq.mm.
REQD. CONCRETE AREA: 103570.45 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1298.87 Muz1 : 44.35 Muy1 : 27.55

INTERACTION RATIO: 0.99 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 19
END JOINT: 160 Puz : 1441.43 Muz : 69.95 Muy : 41.47 IR: 0.65
==========

C O L U M N N O. 302 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 113 SHORT COLUMN

REQD. STEEL AREA : 90.34 Sq.mm.
REQD. CONCRETE AREA: 103909.66 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1197.10 Muz1 : 27.42 Muy1 : 17.64

INTERACTION RATIO: 0.65 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 18
END JOINT: 161 Puz : 1441.43 Muz : 66.01 Muy : 39.28 IR: 0.33

==========

C O L U M N N O. 303 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 18 END JOINT: 114 SHORT COLUMN
REQD. STEEL AREA : 208.72 Sq.mm.
REQD. CONCRETE AREA: 103791.27 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1232.62 Muz1 : 52.73 Muy1 : 33.49

INTERACTION RATIO: 0.36 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 16
END JOINT: 114 Puz : 1441.43 Muz : 66.81 Muy : 39.72 IR: 0.38

==========

C O L U M N N O. 304 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 19 END JOINT: 115 SHORT COLUMN
REQD. STEEL AREA : 204.36 Sq.mm.
REQD. CONCRETE AREA: 103795.64 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1231.31 Muz1 : 51.99 Muy1 : 33.03

INTERACTION RATIO: 0.40 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

```
WORST LOAD CASE:    17
END JOINT:   115 Puz :   1441.43   Muz :     67.45   Muy :     40.08   IR: 0.40
   ================================================================================

         C O L U M N   N O.    305  D E S I G N   R E S U L T S

      M25                     Fe415 (Main)               Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:   116  SHORT COLUMN

REQD. STEEL AREA   :      290.28 Sq.mm.
REQD. CONCRETE AREA:   103709.72 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1257.08   Muz1 :     63.75   Muy1 :     40.17

INTERACTION RATIO: 0.23 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    18
END JOINT:   164 Puz :   1441.43   Muz :     87.58   Muy :     52.61   IR: 0.38
================================================================================

         C O L U M N   N O.    306  D E S I G N   R E S U L T S

      M25                     Fe415 (Main)               Fe415 (Sec.)

LENGTH:  2700.0 mm   CROSS SECTION:  260.0 mm X  400.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   11 END JOINT:   117  SHORT COLUMN
REQD. STEEL AREA   :      287.47 Sq.mm.
REQD. CONCRETE AREA:   103712.53 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.87%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1256.24   Muz1 :     63.46   Muy1 :     39.99

INTERACTION RATIO: 0.30 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    19
END JOINT:   165 Puz :   1441.43   Muz :     87.85   Muy :     52.76   IR: 0.40
================================================================================
```

C O L U M N N O. 307 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 17 END JOINT: 118 SHORT COLUMN
REQD. STEEL AREA : 210.92 Sq.mm.
REQD. CONCRETE AREA: 103789.08 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1233.28 Muz1 : 53.09 Muy1 : 33.71

INTERACTION RATIO: 0.31 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 12
END JOINT: 118 Puz : 1441.43 Muz : 78.70 Muy : 46.74 IR: 0.39

C O L U M N N O. 308 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 18 END JOINT: 119 SHORT COLUMN
REQD. STEEL AREA : 278.68 Sq.mm.
REQD. CONCRETE AREA: 103721.33 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1253.60 Muz1 : 29.27 Muy1 : 18.58

INTERACTION RATIO: 0.98 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 18
END JOINT: 119 Puz : 1441.43 Muz : 63.30 Muy : 37.75 IR: 0.48

C O L U M N N O. 309 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 120 SHORT COLUMN
REQD. STEEL AREA : 314.45 Sq.mm.
REQD. CONCRETE AREA: 103685.55 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1264.33 Muz1 : 66.05 Muy1 : 41.54

INTERACTION RATIO: 0.23 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 14
END JOINT: 168 Puz : 1441.43 Muz : 88.94 Muy : 53.46 IR: 0.40
==========

C O L U M N N O. 310 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2700.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 121 SHORT COLUMN
REQD. STEEL AREA : 318.88 Sq.mm.
REQD. CONCRETE AREA: 103681.12 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1265.66 Muz1 : 66.43 Muy1 : 41.75

INTERACTION RATIO: 0.22 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 17
END JOINT: 169 Puz : 1441.43 Muz : 89.48 Muy : 53.83 IR: 0.23
==========

C O L U M N N O. 404 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 1980.0 mm CROSS SECTION: 260.0 mm X 330.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 149 SHORT COLUMN

```
   REQD. STEEL AREA    :      507.85 Sq.mm.
   REQD. CONCRETE AREA:    85292.15 Sq.mm.
   MAIN REINFORCEMENT : Provide   4 - 16 dia. (0.94%,    804.25 Sq.mm.)
                        (Equally distributed)
   TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 255 mm c/c

   SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
   ----------------------------------------------------------
   Puz :   1117.61   Muz1 :     33.45   Muy1 :     25.47

   INTERACTION RATIO: 1.00 (as per Cl. 39.6, IS456:2000)

   SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
   ----------------------------------------------------------
   WORST LOAD CASE:    11
   END JOINT:   149 Puz :   1206.52   Muz :     45.92   Muy :     34.07   IR: 0.74
      ================================================================================

            C O L U M N   N O.    405  D E S I G N   R E S U L T S

         M25                    Fe415 (Main)              Fe415 (Sec.)

   LENGTH:  1980.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

   ** GUIDING LOAD CASE:   13 END JOINT:   197  SHORT COLUMN
   REQD. STEEL AREA    :       83.63 Sq.mm.
   REQD. CONCRETE AREA:    10454.31 Sq.mm.
   MAIN REINFORCEMENT : Provide   4 - 12 dia. (0.53%,    452.39 Sq.mm.)
                        (Equally distributed)
   TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

   SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
   ----------------------------------------------------------
   Puz :    990.34   Muz1 :     18.23   Muy1 :     14.29

   INTERACTION RATIO: 0.97 (as per Cl. 39.6, IS456:2000)

   SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
   ----------------------------------------------------------
   WORST LOAD CASE:    17
   END JOINT:   197 Puz :   1100.97   Muz :     33.99   Muy :     25.70   IR: 0.53
================================================================================

            C O L U M N   N O.    406  D E S I G N   R E S U L T S

         M25                    Fe415 (Main)              Fe415 (Sec.)

   LENGTH:  1980.0 mm   CROSS SECTION:  260.0 mm X  330.0 mm  COVER: 40.0 mm

   ** GUIDING LOAD CASE:   11 END JOINT:   153  SHORT COLUMN
   REQD. STEEL AREA    :      107.27 Sq.mm.
   REQD. CONCRETE AREA:    13408.51 Sq.mm.
   MAIN REINFORCEMENT : Provide   4 - 12 dia. (0.53%,    452.39 Sq.mm.)
                        (Equally distributed)
```

TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 997.43 Muz1 : 14.06 Muy1 : 11.07

INTERACTION RATIO: 0.96 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 153 Puz : 1100.97 Muz : 29.16 Muy : 22.16 IR: 0.48

==========

C O L U M N N O. 407 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 1980.0 mm CROSS SECTION: 260.0 mm X 330.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 199 SHORT COLUMN
REQD. STEEL AREA : 337.21 Sq.mm.
REQD. CONCRETE AREA: 42150.77 Sq.mm.
MAIN REINFORCEMENT : Provide 4 - 12 dia. (0.53%, 452.39 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1066.41 Muz1 : 23.01 Muy1 : 17.78

INTERACTION RATIO: 0.98 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 199 Puz : 1100.97 Muz : 27.79 Muy : 21.16 IR: 0.82
==========

C O L U M N N O. 429 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2740.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 11 END JOINT: 214 SHORT COLUMN
REQD. STEEL AREA : 317.31 Sq.mm.
REQD. CONCRETE AREA: 103682.69 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1265.19 Muz1 : 48.34 Muy1 : 30.28

INTERACTION RATIO: 0.99 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 11
END JOINT: 214 Puz : 1441.43 Muz : 78.30 Muy : 46.50 IR: 0.63
==========

C O L U M N N O. 430 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2740.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 12 END JOINT: 165 SHORT COLUMN
REQD. STEEL AREA : 142.29 Sq.mm.
REQD. CONCRETE AREA: 103857.71 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1212.69 Muz1 : 39.94 Muy1 : 25.49

INTERACTION RATIO: 0.37 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 13
END JOINT: 215 Puz : 1441.43 Muz : 77.55 Muy : 46.01 IR: 0.50
==========

C O L U M N N O. 431 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2740.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 18 END JOINT: 168 SHORT COLUMN
REQD. STEEL AREA : 177.90 Sq.mm.
REQD. CONCRETE AREA: 103822.10 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1223.37 Muz1 : 47.25 Muy1 : 30.06

INTERACTION RATIO: 0.27 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 16
END JOINT: 216 Puz : 1441.43 Muz : 81.37 Muy : 48.40 IR: 0.56
==========

C O L U M N N O. 432 D E S I G N R E S U L T S

M25 Fe415 (Main) Fe415 (Sec.)

LENGTH: 2740.0 mm CROSS SECTION: 260.0 mm X 400.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 16 END JOINT: 169 SHORT COLUMN
REQD. STEEL AREA : 166.43 Sq.mm.
REQD. CONCRETE AREA: 103833.56 Sq.mm.
MAIN REINFORCEMENT : Provide 8 - 12 dia. (0.87%, 904.78 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 1219.93 Muz1 : 45.02 Muy1 : 28.67

INTERACTION RATIO: 0.31 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 15
END JOINT: 217 Puz : 1441.43 Muz : 80.32 Muy : 47.72 IR: 0.45
==========

C O L U M N N O. 454 D E S I G N R E S U L T S

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 1500.0 mm CROSS SECTION: 457.0 mm X 457.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 13 END JOINT: 162 SHORT COLUMN
REQD. STEEL AREA : 1670.79 Sq.mm.
REQD. CONCRETE AREA: 207178.20 Sq.mm.
MAIN REINFORCEMENT : Provide 16 - 12 dia. (0.87%, 1809.56 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 2384.64 Muz1 : 111.72 Muy1 : 111.72

INTERACTION RATIO: 0.22 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 18
END JOINT: 230 Puz : 2426.58 Muz : 140.93 Muy : 140.93 IR: 0.50

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         C O L U M N   N O.    455  D E S I G N   R E S U L T S

      M20                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  1500.0 mm   CROSS SECTION:  457.0 mm X  457.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   13 END JOINT:   163  SHORT COLUMN
REQD. STEEL AREA    :     1670.79 Sq.mm.
REQD. CONCRETE AREA:   207178.20 Sq.mm.
MAIN REINFORCEMENT : Provide  16 - 12 dia. (0.87%,   1809.56 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   2384.64   Muz1 :    111.87   Muy1 :    111.87

INTERACTION RATIO: 0.32 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    14
END JOINT:   163 Puz :   2426.58   Muz :    120.14   Muy :    120.14   IR: 0.54
================================================================================

         C O L U M N   N O.    456  D E S I G N   R E S U L T S

      M20                    Fe415 (Main)              Fe415 (Sec.)

LENGTH:  1500.0 mm   CROSS SECTION:  457.0 mm X  457.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:   15 END JOINT:   166  TENSION COLUMN
REQD. STEEL AREA    :     1670.79 Sq.mm.
REQD. CONCRETE AREA:   207178.20 Sq.mm.
MAIN REINFORCEMENT : Provide  16 - 12 dia. (0.87%,   1809.56 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   2384.64   Muz1 :    112.02   Muy1 :    112.02

INTERACTION RATIO: 0.25 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:    17
END JOINT:   232 Puz :   2426.58   Muz :    141.07   Muy :    141.07   IR: 0.52

================================================================================

         C O L U M N   N O.    457  D E S I G N   R E S U L T S
```

M20 Fe415 (Main) Fe415 (Sec.)

LENGTH: 1500.0 mm CROSS SECTION: 457.0 mm X 457.0 mm COVER: 40.0 mm

** GUIDING LOAD CASE: 14 END JOINT: 167 SHORT COLUMN
REQD. STEEL AREA : 1670.79 Sq.mm.
REQD. CONCRETE AREA: 207178.20 Sq.mm.
MAIN REINFORCEMENT : Provide 16 - 12 dia. (0.87%, 1809.56 Sq.mm.)
(Equally distributed)
TIE REINFORCEMENT : Provide 8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)

Puz : 2384.64 Muz1 : 111.04 Muy1 : 111.04

INTERACTION RATIO: 0.59 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)

WORST LOAD CASE: 14
END JOINT: 167 Puz : 2426.58 Muz : 120.06 Muy : 120.06 IR: 0.55
==========
339. END CONCRETE DESIGN
340. FINISH

NON DESTRUCTIVE TEST(REBOUND HAMMER)

INDUS ID :	IN-1361734	Building Ht	10.16m (G+2)
SITE NAME :	SECUNDERABAD (CB)	No.of floors	3 floors

The existing building for **M/s INDUS TOWERS LIMITED,33-148,4th Road,Shakthi nagar,RK Puram,Malakagigiri,Sec bad,cell-7780522291** proposed to check the compressive strength for existing building columns by using Rebound hammer.

REBOUND HAMMER READINGS(FOR EXISTING BUILDING COLUMNS)

Sl.no	Testing location	Identification ID	Direction	Rebound hammer Readings				Average	Compressive strength in MPA	Grade of concrete	Remarks
				A	B	C	D				
1	Column 1	Face1	Horizontal	31	32	32	31	32	26	M25	
2	Column 1	Face2	Horizontal	33	30	32	30	31	25	M25	
3	Column 1	Face3	Horizontal	31	32	33	33	32	26	M25	
4	Column 1	Face4	Horizontal	31	33	30	32	32	26	M25	
5	Column 2	Face1	Horizontal	31	32	34	33	33	27	M25	
6	Column 2	Face2	Horizontal	32	33	30	31	32	26	M25	
7	Column 2	Face3	Horizontal	30	31	32	33	32	26	M25	
8	Column 2	Face4	Horizontal	31	32	32	30	31	25	M25	
9	Column 3	Face1	Horizontal	34	30	32	35	33	27	M25	
10	Column 3	Face2	Horizontal	33	31	32	34	33	27	M25	
11	Column 3	Face3	Horizontal	31	33	32	31	32	26	M25	
12	Column 3	Face4	Horizontal	32	31	30	31	31	25	M25	
13	Column 4	Face1	Horizontal	31	30	32	31	31	25	M25	
14	Column 4	Face2	Horizontal	32	32	30	31	31	25	M25	
15	Column 4	Face3	Horizontal	31	32	30	34	32	26	M25	
16	Column 4	Face4	Horizontal	30	33	32	31	32	26	M25	

• Average Compressive strength for existing building columns is 26 MPa.

NDT-REBOUND HAMMER TEST Photos

Photo No :	**IN-1361734-1**	Photo No :	**IN-1361734-2**
Description:	**NDT TEST FOR BUILDING COLUMN**	Description:	**NDT TEST FOR BUILDING COLUMN**

REBAR LOCATOR TEST READINGS

Indus ID	IN-1361734
Site Name	SECUNDERABAD (CB)
Member Tested	R.C.Columns
Testing Instrument	Rebar detecter

Sl.no	Floor	Column/Grid Identification	Estimated number and diameter of reinforcing bars	Remarks
1	Ground	Column	4No's of 16 DIA & 4No's of 12 DIA	
2	Ground	Column	6No's of 12 DIA	
3	Ground	Column	4No's of 16 DIA & 4No's of 12 DIA	
4	Ground	Column	6No's of 12 DIA	
5	1st Floor	Column	4No's of 16 DIA & 4No's of 12 DIA	
6	1st Floor	Column	6No's of 12 DIA	
7	1st Floor	Column	4No's of 16 DIA & 4No's of 12 DIA	
8	1st Floor	Column	6No's of 12 DIA	
9	2nd Floor	Column	4No's of 16 DIA & 4No's of 12 DIA	
10	2nd Floor	Column	6No's of 12 DIA	
11	2nd Floor	Column	4No's of 16 DIA & 4No's of 12 DIA	
12	2nd Floor	Column	6No's of 12 DIA	

कर्मचारी भविष्य निधि संगठन
Employees' Provident Fund Organization
भविष्य निधि भवन, १४, भीकाजी कामा प्लेस, नई दिल्ली - ११००६६
Bhavishya Nidhi Bhawan, 14, Bhikaji Cama Place, New Delhi - 110066

Generated On 16/10/2019 14:43:

Payment Confirmation Receipt

TRRN No :	1201910013878
Challan Status :	Payment Confirmed
Challan Generated On :	14-OCT-2019 13:27:33
Establishment ID :	APHYD0042194000
Establishment Name :	OSPS TELECOM SERVICES PVT. LTD.
Challan Type :	Monthly Contribution Challan
Total Members :	54
Wage Month :	SEP-2019
Total Amount (Rs) :	1,09,021
Account-1 Amount (Rs) :	72,746
Account-2 Amount (Rs) :	2,186
Account-10 Amount (Rs) :	32,158
Account-21 Amount (Rs) :	1,931
Account-22 Amount (Rs) :	0
Payment Confirmation Bank :	HDFC Bank
CRN :	240141019016688
Payment Date :	14-OCT-2019
Payment Confirmation Date :	14-OCT-2019

ESIC
Employees' State Insurance Corporation

Insurance

0

Monthly Contribution > Online Challan Form

Transaction Details * Required Fields

Transaction status:	Completed Successfully
Employer's Code No:	52000202200001099
Employer's Name:	O S P S TELECOM SERVICES
Challan Period:	Sep-2019
Challan Number :	05219134753790
Challan Created Date	14-10-2019 16:21:56
Challan Submitted Date	14-10-2019 16:22:06
Amount Paid:	15829.00
Transaction Number:	192879336830

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