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		Rev	

BEARING CAPACITY
IS 6403 :1981

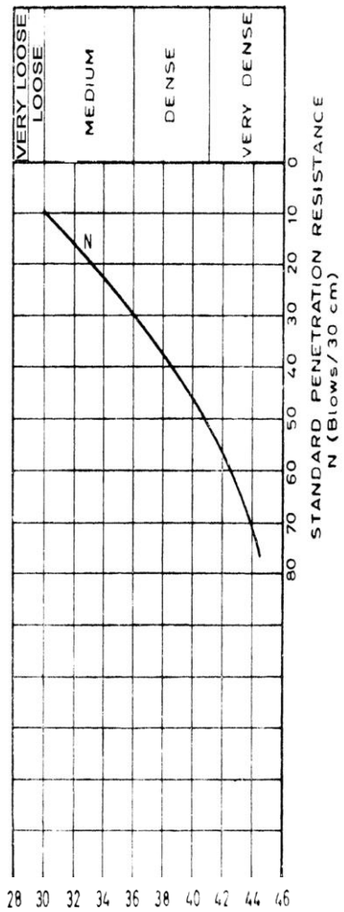
COHISION OF A SOIL	c'	1.00				
DENSITY OF SOIL	γ	180	KN/M^3			
VALUE OF PIE	π	3.142				
SPT TEST N VALUE	N	25	34	38	No of blows for 30 cm penetration	
ANGLE OF INTERNAL FRICTION	Φ	35	DEGREE	(26 to 45 degree)	0.611	RADIANS
DEPTH OF FOUNDATION	Df	1.50	M	Df is less than or equal to its width		
BREADTH/ DIA OF FOUNDATION	B	1.80	M			
PASSIVE PRESSURE COEFFICIENT	Kpγ	7.00				
SURCHARGE	q	0	KN/M^2	q=γ*Df		

GENERAL SHAER FAILURE FACTOR **(FDN ENGG, BM DAS)**

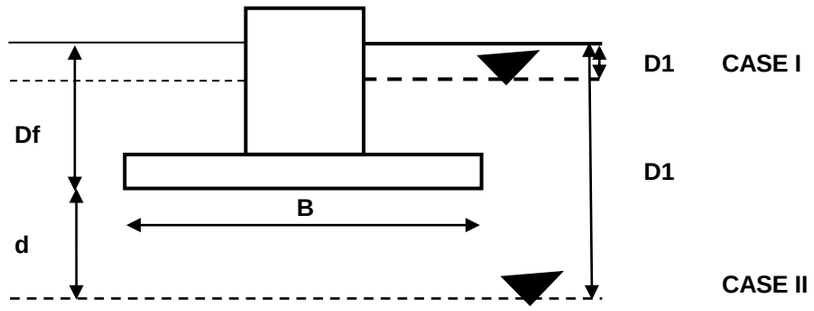
BEARING CAPACITY FACTOR	Nc	57.75	
BEARING CAPACITY FACTOR	Nq	41.44	
BEARING CAPACITY FACTOR	Nγ	3.30	
ULT BC FOR STRIP FOUNDATION	qu	592.71	KN/M^2
ULT BC FOR SQUARE FOUNDATION	qu	503.04	KN/M^2
ULT BC FOR CIRCULAR FOUNDATION	qu	396.05	KN/M^2

FACTOR OF SAFETY	Fs	2.50	
SBC FOR STRIP FOUNDATION	qs	237.08	KN/M^2
SBC FOR SQUARE FOUNDATION	qs	201.22	KN/M^2
ULT BC FOR CIRCULAR FOUNDATION	qs	158.42	KN/M^2

LOCAL SHAER FAILURE FACTOR		0.44	RADIANS	$TAN^{-1}(2/3TAN(\Phi))$
BEARING CAPACITY FACTOR	Nq	12.75		
BEARING CAPACITY FACTOR	Nc	25.18		
BEARING CAPACITY FACTOR	Nγ	1.7564		
ULT BC FOR STRIP FOUNDATION	qu	301.33	KN/M^2	
ULT BC FOR SQUARE FOUNDATION	qu	249.46	KN/M^2	
ULT BC FOR CIRCULAR FOUNDATION	qu	192.55	KN/M^2	



FACTOR OF SAFETY	**Fs**	1.50				
SBC FOR STRIP FOUNDATION	**qs**	200.89	KN/M^2			
SBC FOR SQUARE FOUNDATION	**qs**	166.31	KN/M^2			
ULT BC FOR CIRCULAR FOUNDATION	**qs**	128.37	KN/M^2			
BEARING CAPACITY EQUATION FOR WATER TABLE			**(CHAPTER 3.5, BM DAS)**			
WIDTH OF FOUNDATION	**B**	1.80	M			
DEPTH OF FOUNDATION	**Df**	1.50	M			
DEPTH OF WATER TABLE FROM GL	**D1**	1.00	M	1.00		
DEPTH OF WATER TABLE BELOW FDN	**d**	0.00	M	0.00		
DENSITY OF SOIL	**γ**	180	KN/M^3			
DENSITY OF SATURATED SOIL	**γsat**	2400	KN/M^3			
DENSITY OF WATER	**γw**	1000	KN/M^3			
γ'= γsat- γw	**γ'**	1400	KN/M^3			
γ FACTOR IN LAST TERM OF BC EQN	**γ''**	180	KN/M^3			
SURCHARGE	**q**	880	KN/M^2	q=γ*Df		
BEARING CAPACITY FACTOR	**Nc**	57.75				
BEARING CAPACITY FACTOR	**Nq**	41.44				
BEARING CAPACITY FACTOR	**Nγ**	3.3022				
ULT BC FOR STRIP FOUNDATION	**qu**	37059.70	KN/M^2			
ULT BC FOR SQUARE FOUNDATION	**qu**	36970.04	KN/M^2			
ULT BC FOR CIRCULAR FOUNDATION	**qu**	36863.05	KN/M^2			
FACTOR OF SAFETY	**Fs**	1.50				
SBC FOR STRIP FOUNDATION	**qs**	24706.47	KN/M^2			
SBC FOR SQUARE FOUNDATION	**qs**	24646.69	KN/M^2			
ULT BC FOR CIRCULAR FOUNDATION	**qs**	24575.36	KN/M^2			
GENERAL BEARING CAPACITY EQUATION			**(IS 6403)**			
COHISION OF A SOIL	**c'**	1.00				
DENSITY OF SOIL	**γ**	180	KN/M^3			
VALUE OF PI	**π**	3.142				
ANGLE OF INTERNAL FRICTION	**Φ**	20	DEGREE	(26 to 45 degree)	0.349	RADIANS
DEPTH OF FOUNDATION	**Df**	1.20	M	Df is less than or equal to its width		
BREADTH/ DIA OF FOUNDATION	**B**	1.00	M			
LENGTH OF FOUNDATION	**L**	5.00	M			
SURCHARGE	**q**	216	KN/M^2	q=γ*Df		
INCLINED LOAD	**Qu**	100	KN			
ANGLE OF INCLINATION WITH VERTICAL	**β**	10	DEGREE		0.175	RADIANS



GENERAL SHAER FAILURE FACTOR

BEARING CAPACITY FACTOR	Nc	14.83
BEARING CAPACITY FACTOR	Nq	6.40
BEARING CAPACITY FACTOR	Nγ	11.53
SHAPE FACTOR	Fcs	1.04
SHAPE FACTOR	Fqs	1.04
SHAPE FACTOR	Fγs	0.92
DEPTH FACTOR	Fcd	1.14
DEPTH FACTOR	Fqd	1.07
DEPTH FACTOR	Fγd	1.00
INCLINATION FACTOR	Fci	0.79
INCLINATION FACTOR	Fqi	0.79
INCLINATION FACTOR	Fγi	0.25
WATER TABLE	W'	1.0

W'=1 FOR >(Df+B), W'=0.5 FOR <= Df, W'= 0.5 TO 1.0 FOR <(Df+B) AND >Df

ULT BC FOR STRIP FOUNDATION	qu	1279	KN/M^2
FACTOR OF SAFETY	Fs	1.50	
SBC FOR STRIP FOUNDATION	qs	853	KN/M^2

BC BASED ON SPT VALUE IS 6403-981

SPT VALUE	N	10	
ULT BC FOR STRIP FOUNDATION IN NC SOIL	qu	3412	KN/M^2
FACTOR OF SAFETY	Fs	1.50	
SBC FOR STRIP FOUNDATION	qs	2275	KN/M^2

BC FOR CLAY (COHESIVE) SOIL HOMOGENEOUS LAYER

ULT BC FOR STRIP FOUNDATION IN NC SOIL	qu	4.82	KN/M^2
FACTOR OF SAFETY	Fs	1.50	
SBC FOR STRIP FOUNDATION	qs	3.22	KN/M^2

	SHAPE FACTOR		
SHAPE	Fcs	Fqs	Fγs
STRIP	1.0	1.0	1.0
RECTANGLE	1+0.2B/L	1+0.2B/L	1-0.4B/L
SQUARE	1.2	1.2	0.8
CIRCLE	1.3	1.2	0.6

IS 6403 - 1981

METHOD OF ANALYSIS BASED ON RELATIVE DENSITY			
RELATIVE DENSITY	VOID RATIO	CONDITION	METHOD OF ANALYSIS
>70 %	<0.55	DENSE	GENERAL SHEAR
<20%	>0.75	LOOSE	LOCAL SHEAR
20-70%	0.55 TO 0.75	MEDIUM	GENERAL/LOCAL

$$q_d = q(N_q - 1)\, s_q d_q i_q + \frac{1}{2} B\gamma_1 N_\gamma s_\gamma d_\gamma i_\gamma W'$$

BC FOR CLAY (COHESIVE) SOIL TWO LAYER

NC VALUE FROM GRAPH	Nc	1.00	
ULT BC FOR STRIP FOUNDATION IN NC SOIL	qu	1.00	KN/M^2
FACTOR OF SAFETY	Fs	1.50	
SBC FOR STRIP FOUNDATION	qs	0.67	KN/M^2

BC BASED ON SPT VALUE IS 6403-981

SPT VALUE	N	20	
qall= 55.5(N-3)((B+0.3)/(2B)^2 Sa/40) Rw			**IS 6403 - 1971**
PERMISSIBLE SETTLEMENT q all	Sa	25	mm
ALLOWABLE BC FOR STRIP FDN IN NC SOIL	qu	249	KN/M^2

C DETERMINED FROM STATIC CONE POINT RESISTANCE(kgf/sqm)

SOIL	PT RESIST VALUE	UNDRAIN COHESION
NORMAL CONSOLIDATED	qc<20	qc/18 to qc/15
OVER CONSOLIDATED	qc>20	qc/26 to qc/22