



SITAM



EAMCET CODE: SGVP

SATYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT
ACCREDITED BY NAAC, RECOGNISED UNDER 2(F) AND 12 (B) OF UGC
APPROVED BY AICTE, NEW DELHI,
(PERMANENTLY AFFILIATED TO JNTU-GV, RECOGNISED BY SBTET, GOVERNMENT OF A.P.)

JNTU - GV CODE: B6

REPORT NO : SITAM/GTE/011

DATE: 07-06-2023

Project	Individual residential building
Location	Plot -71,72, mayuri gardens, ottagadha, phool bhagh,vizianagaram
Tests Conducted for	SB Dreams Designs
Reference	Your sample submitted
Description	Testing of soil samples (02) (Two only)

TEST RESULTS

Date of Testing:03-06-2023

The following are the results of tests conducted on two undistributed soil samples pertaining to the work cited above.

S.No	Engineering Property	Sample I Result	Sample II Result
1	<u>Grain size distribution</u>		
	a) Gravel (%)	22.0	21.5
	b) Sand (%)	48.0	49.0
2	<u>Plasticity Characteristics</u>		
	a) Liquid Limit (%)	34	35
	b) Plastic Limit (%)	19	20
3	c) Plasticity Index (%)	15	15
	IS Classification	CL	CL
4	In-situ Density (g/cm ³)	1.88	1.90
5	N.M.C. (%)	15.5	16
6	Differential Free Swell. (%)	29	28
7	<u>Shear Parameters</u>		
	a) Cohesion (t/m ²)	0.58	0.6
8	b) Angle of Shearing Resistance	28°	28°
	Depth of Foundation (m)	1.2	1.2
9	Width of Foundation (m)	0.8	0.8
10	Safe Bearing Capacity (t/m ²)	25.0	24.0

Safe Bearing Capacity (SBC) is evaluated as per IS 6403-1981 considering the footing to be square. Transition mode of shear failure conditions are assumed to prevail in foundation soil. A factor of safety of 2.5 against shear failure is taken in calculation of SBC value.

B.H.S. Sai varaditya 7/6/23
Signature of Lab Incharge

Signature of HOD

Signature of Principal

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Gajularega, Vizianagaram

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REPORT NO.: SITAM/EE/012

DATE: 16-06-2023

Project	Individual residential building
Location	Plot -71,72, mayuri gardens, ottagadha, phool bhagh, vizianagaram
Tests Conducted for	SB Dreams Designs
Reference	Your sample submitted
Description	Testing of reinforcement steel (JINDAL Fe500D)8mm and 10mm dia.
No. of specimens tested	06 (Six only)

TEST RESULTS

Date of Testing: 13-06-2023

The following are the results of tests conducted on ground water sample for drinking purpose, pertaining to the work cited above.

Sl No.	Particulars	Constituents Determined	Requirements as Per IS:10500
1	pH Value	7.4	6.50-8.50
2	Electrical Conductivity (μ . Mhos/cm)	1236	***
3	Odour	Agreeable	Agreeable
4	Taste	Not Agreeable	Agreeable
Chemical Parameters			
5	Dissolved Solids (mg/l), Max.	423	500
6	Total Hardness as CaCO ₃ (mg/l), Max.	252	300
7	Alkalinity to Methyl Orange as CaCO ₃ (mg/l), Max.	161	200
8	Alkalinity to Phenolphthalein as CaCO ₃ (mg/l)	Nil	Not Specified
9	Turbidity NTU, Max.	Nil	1
10	Iron as Fe (mg/l), Max.	0.8	0.3

With reference to the above results, the ground water under consideration is suitable for drinking upon treatment like filtration.


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Signature of HOD


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REPORT NO :SITAM/SM/013

DATE:26-06-2023

Project	Individual residential building
Location	Plot -71,72, mayuri gardens, ottagadha, phool bhagh,vizianagaram
Tests Conducted for	SB Dreams Designs
Reference	Your sample submitted
Description	Testing of reinforcement steel (JINDAL Fe500D)8mm and 10mm dia.
No. of specimens tested	06 (Six only)

TEST RESULTS

Date of Testing: 21-06-2023

The following are the results of tests conducted on reinforcement steel samples, pertaining to the work cited above.

	Property	8mm	10mm	Requirements as per IS: 1786-2008
1	Weight/Meter (Kg/m)	0.366	0.611	0.363 to 0.395 for 8mm 0.567 to 0.617 for 10mm
2	Yield Stress (YS) (N/mm ²)	546	562	500 N/mm ² (minimum)
3	Tensile Strength (TS) (N/mm ²)	672	696	500 (minimum)
4	TS/YS Ratio	1.21	1.16	≥ 1.10, but TS not less than 565.0 N/mm ²
5	Elongation (%)	19.0	23.0	16 % (minimum)
6	Bend Test	satisfactory	satisfactory	No visible cracks, tested as per IS 1599
7	Re bend Test	satisfactory	satisfactory	No visible cracks, tested as per IS 1599

The tested samples are satisfying the requirements as per IS 1786-2008 table -3 for Fe 500D


K. Gayathri Kiran
Signature of Lab Incharge 26/6/23


Signature of HOD


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JNTU - GV CODE: B6

REPORT NO.: SITAM/CT/ 014

DATE: 28-06-2023

Project	Individual residential building
Location	Plot -71,72, mayuri gardens, ottagadha, phool bhagh,vizianagaram
Tests Conducted for	SB Dreams Designs
Reference	Your sample submitted
Description	Mix Design for M25 Concrete

Concrete Mix Design of M20 Concrete

Design stipulations for M20

i)	Characteristic compressive strength required	20 N/mm ²
ii)	Max. size of aggregate	20mm
iii)	Type of coarse aggregate	Crushed Angular
iv)	Type of fine aggregate	River Sand
v)	Workability(Slump	100 mm
vi)	Degree of quality control	Good
vii)	Type of exposure	Moderate
viii)	Type or brand of cement	OPC 53
ix)	Type of Admixture	Fosroc SP 430

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Tests on Cement and aggregates as per Indian Standards

Specific Gravity

S.No	Constituent	Specific Gravity
i)	Cement	3.12
ii)	Coarse aggregate	2.85
iii)	Fine aggregate	2.60
iv)	Admixture Fosroc SP 430	1.20

Sieve analysis of fine aggregate

Sieve size	% passing	Limits for zone -II
10.0mm	100	100
4.75mm	98.8	90-100
2.36mm	80.8	75-100
1.18mm	60.4	55-90
0.60mm	35.4	35-59
0.30mm	19.6	8-30
0.15mm	2.4	0-10

Fine aggregate belongs to Zone-II as per Table- 9 of IS 383-2016.


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Concrete Mix Design of M20 Concrete

A-0 — Determination of Target Strength

Himsworth constant for 5% risk factor is 1.65. In this case standard deviation is taken from IS:456 against M 20 is 4.0.

$$\begin{aligned} f_{\text{target}} &= f_{\text{ck}} + 1.65 \times S \\ &= 20 + 1.65 \times 4.0 = 26.60 \text{ N/mm}^2 \end{aligned}$$

Where,

S = standard deviation in $\text{N/mm}^2 = 4$ (as per table -1 of IS 10262- 2009)

For a tolerance factor of 1.65 and a standard deviation value of 4.0 the target mean strength of concrete comes out to be equal to 26.60 N/mm^2 .

A-1 SELECTION OF WATER CEMENT RATIO

From table 5 of IS 456 on page no. 20, Maximum water-cement ratio=0.50

Based on experience, adopt water-cement ratio as 0.45, for the target mean strength and required workability

$0.45 < 0.50$, hence O.K.

A-2 SELECTION OF WATER CONTENT

From Table 2 of IS 10262- 2009,

Maximum water content = 186 Kg (for Nominal maximum size of aggregate — 20 mm)

Table for Correction in water content

Parameters	Values as per Standard reference condition	Current stipulations	Departure	Correction in Water Content
Slump	50 mm	100 mm	+50mm	+11.16
Shape of Aggregate	Angular	Gravel with Crushed stone		-20
Admixture	Fosroc SP430	Based on Experience		-16.50
			Total	-19.34

So, estimated water content = $186 - 19.34 = 160.66$ litre /m³

A-3 CALCULATION OF CEMENT CONTENT

Water-cement ratio = 0.45

Corrected water content = 160.66 litre /m³

$$\text{Cement content} = \frac{160.66}{0.45} = 357.02 \text{ Kg/m}^3$$

Minimum cement Content for moderate exposure condition = 300 kg/m³

357.02 kg/m³ > 300 kg/m³, hence, OK.

This value is to be checked for durability requirement from IS: 456.

A-4 PROPORTIONS OF VOLUME OF COARSE AGGREGATE AND FINE AGGREGATE CONTENT

From Table 3 of IS 10262:2009,

the volume of coarse aggregate per unit volume of total aggregate corresponding to 20mm size aggregate and fine aggregate (Zone II) for the water-cement ratio of 0.50 is 0.62

For W/C of 0.45 (0.50-0.05), volume of coarse aggregate = (0.62+0.01) = 0.63

The volume of coarse aggregate per unit volume of total aggregate is 0.63

Volume of fine aggregate is taken as 0.37

A-5 MIX CALCULATIONS

The mix calculations per unit volume of concrete shall be as follows:

a) Volume of concrete = 1 m³

$$\begin{aligned} \text{b) Volume of cement} &= \frac{\text{Mass of cement}}{\text{Specific gravity of cement}} \times \frac{1}{1000} \\ &= \frac{357.02}{3.12} \times \frac{1}{1000} = 0.1144 \text{ m}^3 \end{aligned}$$

$$\begin{aligned} \text{c) Volume of water} &= \frac{\text{Mass of water}}{\text{Specific gravity of water}} \times \frac{1}{1000} \\ &= \frac{160.66}{1} \times \frac{1}{1000} = 0.160 \text{ m}^3 \end{aligned}$$

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$$\begin{aligned} \text{d) Volume of Chemical Admixture} &= \frac{\text{Mass of admixture}}{\text{Specific gravity of admixture}} \times \frac{1}{1000} \\ &= \frac{3.57}{1.20} \times \frac{1}{1000} = \mathbf{0.00297 \text{ m}^3} \end{aligned}$$

$$\begin{aligned} \text{e) Volume of all in aggregate} &= [\mathbf{a} - (\mathbf{b} + \mathbf{c} + \mathbf{d})] \\ &= \mathbf{0.72263 \text{ m}^3} \end{aligned}$$

$$\begin{aligned} \text{f) Mass of coarse aggregate} &= e \times \text{Vol of coarse aggregate} \times \text{Sp. gravity of coarse aggregate} \times 1000 \\ &= 0.72263 \times 0.63 \times 2.85 \times 1000 \\ &= \mathbf{1297 \text{ Kg}} \end{aligned}$$

$$\begin{aligned} \text{g) Mass of fine aggregate} &= e \times \text{Vol of fine aggregate} \times \text{Sp. gravity of fine aggregate} \times 1000 \\ &= 0.72263 \times 0.37 \times 2.60 \times 1000 \\ &= \mathbf{695.17 \text{ Kg}} \end{aligned}$$

A-6 (1) MIX PROPORTIONS FOR TRIAL NUMBER 1

$$\text{Water-cement ratio} = 0.45$$

$$\text{Quantity of cement} = 357.02 \text{ Kg/m}^3$$

$$\text{Quantity of Water taken} = 160.66 \text{ Kg/m}^3$$

$$\text{Quantity of Fine aggregate} = 695.17 \text{ Kg/m}^3$$

$$\text{Quantity of Coarse aggregate} = 1297 \text{ Kg/m}^3$$

$$\text{Quantity of Admixture @1.0\%} = 3.57 \text{ Kg/m}^3$$

A-6 (2) MIX PROPORTIONS FOR TRIAL NUMBER 2

$$\text{Water-cement ratio} = 0.50$$


$$\text{Quantity of cement} = 321.32 \text{ Kg/m}^3$$

$$\text{Quantity of Water taken} = 160.66 \text{ Kg/m}^3$$

$$\text{Quantity of Fine aggregate} = 724.87 \text{ Kg/m}^3$$

$$\text{Quantity of Coarse aggregate} = 1296.4 \text{ Kg/m}^3$$

$$\text{Quantity of Admixture @1.0\%} = 3.21 \text{ Kg/m}^3$$


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The above concrete mix design holds good for the samples provided that the parameters taken for the mix design remain the same as taken and aggregates fall within close to their individual grading as mentioned above. The design was on saturated surface dry condition of aggregate when computing the requirement of mixing water, allowance must be made for free surface moisture content or for water absorption dry aggregate Necessary adjustment shall be made in the mass of aggregate. In actual execution, if there is a change in the grading of different materials, the proportions of mixing materials can be changed to achieve the required grading. Quantity of aggregates and water may please be adjusted according to the free moisture present in the aggregates at the time of mix preparations.

K. Gayathri Kesava
28/06/23
Signature of Lab Incharge

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Signature of HOD

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VIZIANAGARAM

SBI FORT BR-31744546678 Book

For 5-Jul-23

Page 1

Date	Particulars	Narration	Vch Type	Vch No.	Debit	Credit
5-Jul-23	To Opening Balance				48,85,827.31	
5-Jul-23	To Hostel Fee-Exempted	DUL1695875	Receipt		10,000.00	
	To University Fee	DUL1703801	Receipt		3,000.00	
	To Examination Fee A/c [Sitam]	DUL1680740	Receipt		600.00	
	To TUITION FEE	DUL1664101	Receipt		48,500.00	
	To Hostel Fee-Exempted	DUL1705300	Receipt		10,000.00	
	To Examination Fee A/c [Sitam]	DUL1686717	Receipt		600.00	
	To Examination Fee A/c [Sitam]	DUL1688232	Receipt		600.00	
	To University Fee	DUL1704836	Receipt		3,000.00	
	To S B Dream Designs	amount received from SB Dream Designs	Receipt		80,000.00	✓
	To Examination Fee A/c [Sitam]	UPI/CR/318652211095	Receipt		1,000.00	
	To TUITION FEE	UPI/CR/318630011307	Receipt		50,000.00	
	To TUITION FEE	UPI/CR/318611484269	Receipt		20,000.00	
	To TCS-Exam Invigilation Expenses	TRANSFER	Receipt		2,532.35	
	To Examination Fee A/c [Sitam]	DUL1748883	Receipt		600.00	
	To University Fee	DUL1780466	Receipt		3,000.00	
	To TUITION FEE	DUL1823492	Receipt		29,400.00	
	To Examination Fee A/c [Sitam]	DUL1781047	Receipt		3,000.00	
	By Sai Balaji Enterprises	AMOUNT PAID TO SAI BALAJI ENTERPRISES	Payment			67,930.00
	By TCS-Exam Invigilation Expenses	T/W TCS EXAM INVIGILATOR REMUNERATION PAID	Payment			1,31,689.55
	By TCS-Exam Invigilation Expenses	T/W TCS EXAM INVIGILATOR REMUNERATION PAID	Payment			2,24,581.45
	By Promotion Work Expenses	T/W PROMOTION EXPENSES	Payment			4,050.00
	By Salary Payable A/c-Sitam	T/W NON TEACHING STAFF SALARIES PAID	Payment			8,61,551.00
					51,51,659.66	12,89,802.00
	By Closing Balance					38,61,857.66
					51,51,659.66	51,51,659.66

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JNTU - GV CODE: **B6**

Project	Commercial Building
Location	19-10-7, Mattam street, opposite to Vijaya diagnostic vizianagaram
Tests Conducted for	JR Constructions
Reference	Sample submitted
Description	Testing of undisturbed soil samples

REPORT NO.: SITAM/GTE/015

DATE: 12-09-2023

TEST RESULTS

Date of Testing: 08-09-2023

The following are the results of tests conducted on two undistributed soil samples pertaining to the work cited above.

S.No	Engineering Property	Sample I Result
1	<u>Grain size distribution</u>	
	a) Gravel (%)	18.0
	b) Sand (%)	52.0
2	<u>Plasticity Characteristics</u>	
	a) Liquid Limit (%)	36
	b) Plastic Limit (%)	21
	c) Plasticity Index (%)	15
3	IS Classification	CL
4	In-situ Density (g/cm ³)	1.85
5	N.M.C. (%)	18
6	Differential Free Swell. (%)	33
7	<u>Shear Parameters</u>	
	a) Cohesion (t/m ²)	0.55
	b) Angle of Shearing Resistance	27°
8	Depth of Foundation (m)	1.2
9	Width of Foundation (m)	0.8
10	Safe Bearing Capacity (t/m ²)	22.5


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Safe Bearing Capacity (SBC) is evaluated as per IS 6403-1981 considering the footing to be square. Transition mode of shear failure conditions are assumed to prevail in foundation soil. A factor of safety of 2.5 against shear failure is taken in calculation of SBC value.

B.H.S. Sai prabath 12/9/23
Signature of Lab Incharge


Signature of HOD


Signature of Principal
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JNTU - GV CODE: B6

REPORT NO.: SITAM/CT/016

DATE: 25-09-2023

Project	Commercial Building
Location	19-10-07, mattam street, opposite vijaya diagnostic, Vizianagaram.
Tests Conducted for	JR CONSTRUCTIONS
Reference	Sample submitted
Description	Mix Design for M25 Concrete

Concrete Mix Design of M25 Concrete

Design stipulations for M25

i)	Characteristic compressive strength required	25 N/mm ²
ii)	Max. size of aggregate	20mm
iii)	Type of coarse aggregate	Crushed Angular
iv)	Type of fine aggregate	River Sand
v)	Workability (Slump)	100 mm
vi)	Degree of quality control	Good
vii)	Type of exposure	Moderate
viii)	Type or brand of cement	OPC 43
ix)	Type of Admixture	Fosroc SP 430

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Tests on Cement and aggregates as per Indian Standards

Specific Gravity

S.No	Constituent	Specific Gravity
i)	Cement	3.03
ii)	Coarse aggregate	2.76
iii)	Fine aggregate	2.63
iv)	Admixture Fosroc SP 430	1.20

Sieve analysis of fine aggregate

Sieve size	% passing	Limits for zone -II
10.0mm	100	100
4.75mm	98.8	90-100
2.36mm	80.8	75-100
1.18mm	60.4	55-90
0.60mm	35.4	35-59
0.30mm	19.6	8-30
0.15mm	2.4	0-10

Fine aggregate belongs to Zone-II as per Table- 9 of IS 383-2016.

Concrete Mix Design of M25 Concrete

A-0 — Determination of Target Strength

Himsworth constant for 5% risk factor is 1.65. In this case standard deviation is taken from IS:456 against M 25 is 4.0.

$$\begin{aligned}f_{\text{target}} &= f_{\text{ck}} + 1.65 \times S \\ &= 25 + 1.65 \times 4.0 = 31.60 \text{ N/mm}^2\end{aligned}$$

Where,

S = standard deviation in $\text{N/mm}^2 = 4$ (as per table -1 of IS 10262- 2009)

For a tolerance factor of 1.65 and a standard deviation value of 4.0 the target mean strength of concrete comes out to be equal to 31.60 N/mm^2 .

A-1 SELECTION OF WATER CEMENT RATIO

From table 5 of IS 456 on page no. 20, Maximum water-cement ratio=0.50

Based on experience, adopt water-cement ratio as 0.45, for the target mean strength and required workability

$0.45 < 0.50$, hence O.K.

A-2 SELECTION OF WATER CONTENT

From Table 2 of IS 10262- 2009,

Maximum water content = 186 Kg (for Nominal maximum size of aggregate — 20 mm)

Table for Correction in water content

Parameters	Values as per Standard reference condition	Current stipulations	Departure	Correction in Water Content
Slump	50 mm	100 mm	+50mm	+11.16
Shape of Aggregate	Angular	Gravel with Crushed stone		-20
Admixture	Fosroc SP430	Based on Experience		-16.50
			Total	-25.34

So, estimated water content = $186 - 25.34 = 160.66$ litre /m³

A-3 CALCULATION OF CEMENT CONTENT

Water-cement ratio = 0.45

Corrected water content = 160.66 litre /m³

$$\text{Cement content} = \frac{160.66}{0.45} = 373.62 \text{ Kg/m}^3$$

Minimum cement Content for moderate exposure condition = 300 kg/m³

$373.62 \text{ kg/m}^3 > 300 \text{ kg/m}^3$, hence, OK.

This value is to be checked for durability requirement from IS: 456.

A-4 PROPORTIONS OF VOLUME OF COARSE AGGREGATE AND FINE AGGREGATE CONTENT

From Table 3 of IS 10262:2009,

the volume of coarse aggregate per unit volume of total aggregate corresponding to 20mm size aggregate and fine aggregate (Zone II) for the water-cement ratio of 0.50 is 0.62

For W/C of 0.45 (0.50-0.05), volume of coarse aggregate = $(0.62+0.01) = 0.63$

The volume of coarse aggregate per unit volume of total aggregate is 0.63

Volume of fine aggregate is taken as 0.37

A-5 MIX CALCULATIONS

The mix calculations per unit volume of concrete shall be as follows:

a) Volume of concrete = 1 m³

$$\begin{aligned} \text{b) Volume of cement} &= \frac{\text{Mass of cement}}{\text{Specific gravity of cement}} \times \frac{1}{1000} \\ &= \frac{373.62}{3.03} \times \frac{1}{1000} = 0.1233 \text{ m}^3 \end{aligned}$$

$$\begin{aligned} \text{c) Volume of water} &= \frac{\text{Mass of water}}{\text{Specific gravity of water}} \times \frac{1}{1000} \\ &= \frac{160.66}{1} \times \frac{1}{1000} = 0.160 \text{ m}^3 \end{aligned}$$

$$\begin{aligned} \text{d) Volume of Chemical Admixture} &= \frac{\text{Mass of admixture}}{\text{Specific gravity of admixture}} \times \frac{1}{1000} \\ &= \frac{3.73}{1.20} \times \frac{1}{1000} = \mathbf{0.0031 \text{ m}^3} \end{aligned}$$

$$\begin{aligned} \text{e) Volume of all in aggregate} &= [\mathbf{a} - (\mathbf{b} + \mathbf{c} + \mathbf{d})] \\ &= \mathbf{0.7129 \text{ m}^3} \end{aligned}$$

$$\begin{aligned} \text{f) Mass of coarse aggregate} &= \mathbf{e} \times \text{Vol of coarse aggregate} \times \text{Sp. gravity of coarse aggregate} \times 1000 \\ &= 0.7129 \times 0.63 \times 2.76 \times 1000 \\ &= \mathbf{1247.49 \text{ Kg}} \end{aligned}$$

$$\begin{aligned} \text{g) Mass of fine aggregate} &= \mathbf{e} \times \text{Vol of fine aggregate} \times \text{Sp. gravity of fine aggregate} \times 1000 \\ &= 0.7129 \times 0.37 \times 2.63 \times 1000 \\ &= \mathbf{686.239 \text{ Kg}} \end{aligned}$$

A-6 (1) MIX PROPORTIONS FOR TRIAL NUMBER 1

Water-cement ratio = 0.45

Quantity of cement = 373.6279 Kg/m³

Quantity of Water taken = 160.66 Kg/m³

Quantity of Fine aggregate = 686.2395 Kg/m³

Quantity of Coarse aggregate = 1247.49 Kg/m³

Quantity of Admixture @1.0% = 3.736279 Kg/m³

A-6 (2) MIX PROPORTIONS FOR TRIAL NUMBER 2

Water-cement ratio = 0.50


Quantity of cement = 321.32 Kg/m³

Quantity of Water taken = 160.66 Kg/m³

Quantity of Fine aggregate = 730.1778 Kg/m³

Quantity of Coarse aggregate = 1250.23 Kg/m³

Quantity of Admixture @1.0% = 3.2132 Kg/m³


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Satya Institute of Technology And Management
Gajularega, Vizianagaram-535002

A-6 (3) MIX PROPORTIONS FOR TRIAL NUMBER 3

Water-cement ratio	= 0.43
Quantity of cement	= 357.0222 Kg/m ³
Quantity of Water taken	= 160.66 Kg/m ³
Quantity of Fine aggregate	= 699.2071 Kg/m ³
Quantity of Coarse aggregate	= 1249.39 Kg/m ³
Quantity of Admixture @1.0%	= 3.570222 Kg/m ³

The concrete cubes (150mm x 150mm) were cast with these mixes and the following results were obtained.

Mix No.	Water	Cement	W/C Ratio	Slump (mm)	28-days Compressive Strength. N/mm ² .
1	160.66	373.6279	0.45	94	38.05
2	160.66	321.32	0.50	118	36.69
3	160.66	357.02	0.43	72	36.32

RECOMMENDATIONS. The 28 days compressive strength of trial mix no.2 fulfills the design criteria as per IS 10262:2009. Hence recommended being adopted for M-25 grade Cement concrete. Quantities of Material for one cubic meter of concrete are

Water-cement ratio	=	0.50
Quantity of cement	=	321.32 Kg/m ³
Quantity of Water taken	=	160.66 Kg/m ³
Quantity of Fine aggregate	=	730.1778 Kg/m ³
Quantity of Coarse aggregate	=	1250.23 Kg/m ³
Quantity of Admixture @1.0%	=	3.2132 Kg/m ³

The above concrete mix design holds good for the samples provided that the parameters taken for the mix design remain the same as taken and aggregates fall within close to their individual grading as mentioned above. The design was on saturated surface dry condition of aggregate when computing the requirement of mixing water, allowance must be made for free surface moisture content or for water absorption dry aggregate Necessary adjustment shall be made in the mass of aggregate. In actual execution, if there is a change in the grading of different materials, the proportions of mixing materials can be changed to achieve the required grading. Quantity of aggregates and water may please be adjusted according to the free moisture present in the aggregates at the time of mix preparations.

K. Gayathri
Signature of Lab Incharge

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Signature of HOD

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Signature of Principal

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Principal
Satya Institute of Technology And Management
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SRI BOTCHA GURUNAI DU MEMORIAL EDUCATIONAL SOCIETY - (2023-24)
VIZIANAGARAM

SBI FORT BR-31744546678 Book

For 6-Oct-23

Date	Particulars	Narration	Vch Type	Vch No.	Debit	Credit
6-Oct-23	To	Opening Balance				39,83,185.00
6-Oct-23	To	JR Constructions	amount received from JR constructions	Receipt	40,000.00	
	To	TUITION FEE	UPI/CR/327978818040	Receipt	16,500.00	
	To	University Fee	UPI/CR/327902461515	Receipt	5,500.00	
	To	Hostel Fee-Exempted	UPI/CR/327928367123	Receipt	6,500.00	
	To	Hostel Fee-Exempted	UPI/CR/327948049957	Receipt	6,500.00	
	To	Hostel Fee-Exempted	UPI/CR/327965120975	Receipt	6,500.00	
	To	Hostel Fee-Exempted	UPI/CR/327940195480	Receipt	10,000.00	
	To	TUITION FEE	UPI/CR/327929878901	Receipt	26,500.00	
	To	University Fee	UPI/CR/327975662961	Receipt	5,000.00	
	To	Hostel Fee-Exempted	DUL7025185	Receipt	10,000.00	
	To	Hostel Fee-Exempted	DUL7063300	Receipt	6,500.00	
	To	Hostel Fee-Exempted	DUL7014472	Receipt	10,500.00	
	To	Hostel Fee-Exempted	DUL7071434	Receipt	10,000.00	
					<hr/>	
					41,43,185.00	
	By	Closing Balance				41,43,185.00
					<hr/>	
					41,43,185.00	41,43,185.00

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**FINANCE OFFICER
SITAM
VIZIANAGARAM**

(Handwritten Signature)
Principal

Satya Institute of Technology And Management
Gajularega, Vizianagaram-535002

(Handwritten Signature)

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Satya Institute of Technology
and Management
Vizianagaram-535002 (A.P)**





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EAMCET CODE: SGVP

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APPROVED BY AICTE, NEW DELHI,
(PERMANENTLY AFFILIATED TO JNTU-GV, RECOGNISED BY SBTET, GOVERNMENT OF A.P.)

JNTU - GV CODE: B6

REPORT NO.: SITAM/GTE/017

DATE: 5-10-2023

Project	Commercial Building (G+2)
Location	Plot 57, midapuri, vuda colony, madhurwada, visakhapatnam
Tests Conducted for	AB Constructions
Reference	Sample submitted
Description	Testing of undisturbed soil samples (02) (Two only)

TEST RESULTS

Date of Testing: 3-10-2023

The following are the results of tests conducted on two undistributed soil samples pertaining to the work cited above.

S.No	Engineering Property	Sample I Result	Sample II Result
1	<u>Grain size distribution</u>		
	a) Gravel (%)	25.0	24.5
	b) Sand (%)	50.0	51.0
2	<u>Plasticity Characteristics</u>		
	a) Liquid Limit (%)	32	33
	b) Plastic Limit (%)	18	19
3	c) Plasticity Index (%)	14	14
	IS Classification	CL	CL
4	In-situ Density (g/cm ³)	1.92	1.91
5	N.M.C. (%)	14	15
6	Differential Free Swell. (%)	27	26
7	<u>Shear Parameters</u>		
	a) Cohesion (t/m ²)	0.62	0.60
	b) Angle of Shearing Resistance	31°	31°
8	Depth of Foundation (m)	1.5	1.5
9	Width of Foundation (m)	0.9	0.9
10	Safe Bearing Capacity (t/m ²)	125	123

Safe Bearing Capacity (SBC) is evaluated as per IS 6403-1981 considering the footing to be square. Transition mode of shear failure conditions are assumed to prevail in foundation soil. A factor of safety of 2.5 against shear failure is taken in calculation of SBC value.

B.H.S. Sai Pravech 5/10/23.
Signature of Lab Incharge

Signature of HOD

Signature of Principal

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☎ 96767 88811/55, 08922-234775/9

REPORT NO.: SITAM/CT/018

DATE: 14/10/2023

Project	Commercial Building (G+2)
Location	Plot 57, midapuri, vuda colony, madhurwada, visakhapatnam
Tests Conducted for	AB Constructions
Reference	Sample submitted
Description	Mix Design for M25 Concrete

Concrete Mix Design of M25 Concrete

Design stipulations for M25

i)	Characteristic compressive strength required	25 N/mm ²
ii)	Max. size of aggregate	20mm
iii)	Type of coarse aggregate	Crushed Angular
iv)	Type of fine aggregate	River Sand
v)	Workability (Slump)	150 mm
vi)	Degree of quality control	Good
vii)	Type of exposure	Moderate
viii)	Type or brand of cement	OPC 53
ix)	Type of Admixture	Fosroc SP 430

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Tests on Cement and aggregates as per Indian Standards

Specific Gravity

S.No	Constituent	Specific Gravity
i)	Cement	3.13
ii)	Coarse aggregate	2.80
iii)	Fine aggregate	2.65
iv)	Admixture Fosroc SP 430	1.20

Sieve analysis of fine aggregate

Sieve size	% passing	Limits for zone -II
10.0mm	100	100
4.75mm	98.8	90-100
2.36mm	80.8	75-100
1.18mm	60.4	55-90
0.60mm	35.4	35-59
0.30mm	19.6	8-30
0.15mm	2.4	0-10

Fine aggregate belongs to Zone-II as per Table- 9 of IS 383-2016.

Concrete Mix Design of M25 Concrete

A-0 — Determination of Target Strength

Hinsworth constant for 5% risk factor is 1.65. In this case standard deviation is taken from IS:456 against M 25 is 4.0.

$$\begin{aligned} f_{\text{target}} &= f_{\text{ck}} + 1.65 \times S \\ &= 25 + 1.65 \times 4.0 = 31.60 \text{ N/mm}^2 \end{aligned}$$

Where,

S = standard deviation in $\text{N/mm}^2 = 4$ (as per table -1 of IS 10262- 2009)

For a tolerance factor of 1.65 and a standard deviation value of 4.0 the target mean strength of concrete comes out to be equal to 31.60 N/mm^2 .

A-1 SELECTION OF WATER CEMENT RATIO

From table 5 of IS 456 on page no. 20, Maximum water-cement ratio=0.50

Based on experience, adopt water-cement ratio as 0.45, for the target mean strength and required workability

0.45 < 0.50, hence O.K.

A-2 SELECTION OF WATER CONTENT

From Table 2 of IS 10262- 2009,

Maximum water content = 186 Kg (for Nominal maximum size of aggregate — 20 mm)

Table for Correction in water content

Parameters	Values as per Standard reference condition	Current stipulations	Departure	Correction in Water Content
Slump	50 mm	150 mm	+100mm	+22.32
Shape of Aggregate	Angular	Gravel with Crushed stone		-20
Admixture	Fosroc SP430	Based on Experience		-16.50
			Total	-14.18

So, estimated water content = $186 - 14.18 = 171.82$ litre /m³

A-3 CALCULATION OF CEMENT CONTENT

Water-cement ratio = 0.45

Corrected water content = 171.82 litre /m³

Cement content = $\frac{171.82}{0.45} = 381.82$ Kg/m³

Minimum cement Content for moderate exposure condition = 300 kg/m³

381.82 kg/m³ > 300 kg/m³, hence, OK.

This value is to be checked for durability requirement from IS: 456.

A-4 PROPORTIONS OF VOLUME OF COARSE AGGREGATE AND FINE AGGREGATE CONTENT

From Table 3 of IS 10262:2009,

the volume of coarse aggregate per unit volume of total aggregate corresponding to 20mm size aggregate and fine aggregate (Zone II) for the water-cement ratio of 0.50 is 0.62

For W/C of 0.45 (0.50-0.05), volume of coarse aggregate = $(0.62+0.01) = 0.63$

The volume of coarse aggregate per unit volume of total aggregate is 0.63

Volume of fine aggregate is taken as 0.37

A-5 MIX CALCULATIONS

The mix calculations per unit volume of concrete shall be as follows:

a) Volume of concrete = 1 m³

$$\begin{aligned} \text{b) Volume of cement} &= \frac{\text{Mass of cement}}{\text{Specific gravity of cement}} \times \frac{1}{1000} \\ &= \frac{381.82}{3.13} \times \frac{1}{1000} = 0.1219 \text{ m}^3 \end{aligned}$$

$$\begin{aligned} \text{c) Volume of water} &= \frac{\text{Mass of water}}{\text{Specific gravity of water}} \times \frac{1}{1000} \\ &= \frac{171.82}{1} \times \frac{1}{1000} = 0.172 \text{ m}^3 \end{aligned}$$

$$\begin{aligned} \text{d) Volume of Chemical Admixture} &= \frac{\text{Mass of admixture}}{\text{Specific gravity of admixture}} \times \frac{1}{1000} \\ &= \frac{3.81}{1.20} \times \frac{1}{1000} = \mathbf{0.0032 \text{ m}^3} \end{aligned}$$

$$\begin{aligned} \text{e) Volume of all in aggregate} &= [\mathbf{a} - (\mathbf{b} + \mathbf{c} + \mathbf{d})] \\ &= \mathbf{0.70301 \text{ m}^3} \end{aligned}$$

$$\begin{aligned} \text{f) Mass of coarse aggregate} &= e \times \text{Vol of coarse aggregate} \times \text{Sp. gravity of coarse aggregate} \times 1000 \\ &= 0.70301 \times 0.63 \times 2.80 \times 1000 \\ &= \mathbf{1240.11 \text{ Kg}} \end{aligned}$$

$$\begin{aligned} \text{g) Mass of fine aggregate} &= e \times \text{Vol of fine aggregate} \times \text{Sp. gravity of fine aggregate} \times 1000 \\ &= 0.70301 \times 0.37 \times 2.65 \times 1000 \\ &= \mathbf{689.31 \text{ Kg}} \end{aligned}$$

A-6 (1) MIX PROPORTIONS FOR TRIAL NUMBER 1

$$\text{Water-cement ratio} = 0.45$$

$$\text{Quantity of cement} = 381.8222 \text{ Kg/m}^3$$

$$\text{Quantity of Water taken} = 171.82 \text{ Kg/m}^3$$

$$\text{Quantity of Fine aggregate} = 689.3015 \text{ Kg/m}^3$$

$$\text{Quantity of Coarse aggregate} = 1240.11 \text{ Kg/m}^3$$

$$\text{Quantity of Admixture @1.0\%} = 3.818222 \text{ Kg/m}^3$$

A-6 (2) MIX PROPORTIONS FOR TRIAL NUMBER 2

$$\text{Water-cement ratio} = 0.50$$

$$\text{Quantity of cement} = 343.64 \text{ Kg/m}^3$$

$$\text{Quantity of Water taken} = 171.82 \text{ Kg/m}^3$$

$$\text{Quantity of Fine aggregate} = 720.5359 \text{ Kg/m}^3$$

$$\text{Quantity of Coarse aggregate} = 1242.155 \text{ Kg/m}^3$$

$$\text{Quantity of Admixture @1.0\%} = 3.4364 \text{ Kg/m}^3$$

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A-6 (3) MIX PROPORTIONS FOR TRIAL NUMBER 3

Water-cement ratio	= 0.43
Quantity of cement	= 399.5814 Kg/m ³
Quantity of Water taken	= 171.82 Kg/m ³
Quantity of Fine aggregate	= 676.203 Kg/m ³
Quantity of Coarse aggregate	= 1237.649 Kg/m ³
Quantity of Admixture @1.0%	= 3.995814 Kg/m ³

The concrete cubes (150mm x 150mm) were cast with these mixes and the following results were obtained.

Mix No.	Water	Cement	W/C Ratio	Slump (mm)	28-days Compressive Strength. N/mm ² .
1	171.82	381.82	0.45	154	38.05
2	171.82	343.64	0.50	163	36.69
3	171.82	399.58	0.43	104	36.32

RECOMMENDATIONS. The 28 days compressive strength of trial mix no.1 fulfills the design criteria as per IS 10262:2009. Hence recommended being adopted for M-25 grade Cement concrete. Quantities of Material for one cubic meter of concrete are

Water-cement ratio	=	0.45
Quantity of cement	=	381.8222 Kg/m ³
Quantity of Water taken	=	171.82 Kg/m ³
Quantity of Fine aggregate	=	689.3015 Kg/m ³
Quantity of Coarse aggregate	=	1240.11 Kg/m ³
Quantity of Admixture @1.0%	=	3.818222 Kg/m ³

The above concrete mix design holds good for the samples provided that the parameters taken for the mix design remain the same as taken and aggregates fall within close to their individual grading as mentioned above. The design was on saturated surface dry condition of aggregate when computing the requirement of mixing water, allowance must be made for free surface moisture content or for water absorption dry aggregate Necessary adjustment shall be made in the mass of aggregate. In actual execution, if there is a change in the grading of different materials, the proportions of mixing materials can be changed to achieve the required grading. Quantity of aggregates and water may please be adjusted according to the free moisture present in the aggregates at the time of mix preparations.

K. Gayatri Kiran
Signature of Lab Incharge
17/10/23

[Signature]
Signature of HOD

[Signature]
Signature of Principal
Satya Institute of Technology And Management
Gajularega, Vizianagaram-535002

[Signature]
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Satya Institute of Technology
and Management
Vizianagaram-535002 (A.P)



[Signature]
Satya Institute of Technology And Management
Gajularega, Vizianagaram-535002



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APPROVED BY AICTE, NEW DELHI,
(PERMANENTLY AFFILIATED TO JNTU -GV, RECOGNISED BY SBTET, GOVERNMENT OF A.P.)

JNTU - GV CODE: B6

REPORT NO.: SITAM/EE/019

DATE: 20-10-2023

TEST RESULTS

Date of Testing: 18-10-2023

The following are the results of tests conducted on ground water sample for drinking purpose, pertaining to the work cited above.

Sl No.	Particulars	Constituents Determined	Requirements as Per IS:10500
1	P ^H Value	7.9	6.50-8.50
2	Electrical Conductivity (μ . Mhos/cm)	1248	***
3	Odour	Agreeable	Agreeable
4	Taste	Not Agreeable	Agreeable
Chemical Parameters			
5	Dissolved Solids (mg/l), Max.	345	500
6	Total Hardness as CaCO ₃ (mg/l), Max.	220	300
7	Alkalinity to Methyl Orange as CaCO ₃ (mg/l), Max.	148	200
8	Alkalinity to Phenolphthalein as CaCO ₃ (mg/l)	Nil	Not Specified
9	Turbidity NTU, Max.	Nil	1
10	Iron as Fe (mg/l), Max.	0.7	0.3

With reference to the above results, the ground water under consideration is suitable for drinking upon treatment like filtration.


Signature of Lab Incharge


Signature of HOD


Signature of Principal

Satya Institute of Technology And Management
Gajularega, Vizianagaram-535002


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Date	Particulars	Narration	Vch Type	Vch No.	Debit	Credit
	Brought Forward				59,12,084.87	
3-Nov-23	To Examination Fee Alc (Sitam)	DUL8230362	Receipt		900.00	
	To Hostel Fee-Exempted	UPI/CR/330757046294	Receipt		5,000.00	
	To TUITION FEE	DUL8220915	Receipt		11,400.00	
	To Hostel Fee-Exempted	DUL8232202	Receipt		6,000.00	
	To AB Constructions	UPI/CR/330761862213	Receipt		50,000.00	
					59,85,384.87	
						59,85,384.87
By	Closing Balance					59,85,384.87
					59,85,384.87	59,85,384.87

[Signature]
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[Signature]

Principal

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 (PERMANENTLY AFFILIATED TO JNTU-GV, RECOGNISED BY SBTET, GOVERNMENT OF A.P.)

REPORT NO.: SITAM/GTE/020

DATE: 28-02-2024

Project	RCC roof stilt and ground floor residential Building
Location	1-17/13-1plot no MIG-234 vuda colony phase-iii survey no 13 vizianagaram
Tests Conducted for	JR CONSTRUCTIONS
Reference	Sample submitted
Description	Testing of undisturbed soil samples (02) (Two only)

TEST RESULTS

Date of Testing: 19-02-2024

The following are the results of tests conducted on two undistributed soil samples pertaining to the work cited above.

S.No	Engineering Property	Sample I Result	Sample II Result
1	<u>Grain size distribution</u>		
	a) Gravel (%)	28.0	26.0
	b) Sand (%)	54.0	52.0
2	<u>Plasticity Characteristics</u>		
	a) Liquid Limit (%)	28	31
	b) Plastic Limit (%)	16	19
3	c) Plasticity Index (%)	12	12
	IS Classification	CL	CL
4	In-situ Density (g/cm ³)	1.926	1.918
5	N.M.C. (%)	13	14
6	Differential Free Swell. (%)	9	8
7	<u>Shear Parameters</u>		
	a) Cohesion (t/m ²)	0.47	0.42
	b) Angle of Shearing Resistance	34°	34°
8	Depth of Foundation (m)	1.4	1.4
9	Width of Foundation (m)	0.9	0.9
10	Safe Bearing Capacity (t/m ²)	226	218

Safe Bearing Capacity (SBC) is evaluated as per IS 6403-1981 considering the footing to be square. Transition mode of shear failure conditions are assumed to prevail in foundation soil. A factor of safety of 2.5 against shear failure is taken in calculation of SBC value.

S.M.S. Sai Masath 28/2/24
Signature of Lab Incharge

Signature of HOD

Signature of Principal
Satya Institute of Technology And Management

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REPORT NO.: SITAM/CT/021

DATE: 02/03/2024

Project	RCC roof stilt and ground floor residential Building
Location	1-17/13-1plot no MIG-234 vuda colony phase-iii survey no 13 vizianagaram
Tests Conducted for	JR CONSTRUCTIONS
Reference	Sample submitted
Description	Mix Design for M20 Concrete

Concrete Mix Design of M20 Concrete

Design stipulations for M20

i)	Characteristic compressive strength required	20 N/mm ²
ii)	Max. size of aggregate	20mm
iii)	Type of coarse aggregate	Crushed Angular
iv)	Type of fine aggregate	River Sand
v)	Workability(Slump	150 mm
vi)	Degree of quality control	Good
vii)	Type of exposure	Moderate
viii)	Type or brand of cement	OPC 43
ix)	Type of Admixture	Fosroc SP 430

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Vizianagaram-535002 (A.P)



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Tests on Cement and aggregates as per Indian Standards

Specific Gravity

S.No	Constituent	Specific Gravity
i)	Cement	3.09
ii)	Coarse aggregate	2.86
iii)	Fine aggregate	2.64
iv)	Admixture Fosroc SP 430	1.20

Sieve analysis of fine aggregate

Sieve size	% passing	Limits for zone -II
10.0mm	100	100
4.75mm	98.8	90-100
2.36mm	80.8	75-100
1.18mm	60.4	55-90
0.60mm	35.4	35-59
0.30mm	19.6	8-30
0.15mm	2.4	0-10

Fine aggregate belongs to Zone-II as per Table- 9 of IS 383-2016.

Concrete Mix Design of M20 Concrete

A-0 — Determination of Target Strength

Himsworth constant for 5% risk factor is 1.65. In this case standard deviation is taken from IS:456 against M 20 is 4.0.

$$\begin{aligned}f_{\text{target}} &= f_{\text{ck}} + 1.65 \times S \\ &= 20 + 1.65 \times 4.0 = 26.60 \text{ N/mm}^2\end{aligned}$$

Where,

S = standard deviation in $\text{N/mm}^2 = 4$ (as per table -1 of IS 10262- 2009)

For a tolerance factor of 1.65 and a standard deviation value of 4.0 the target mean strength of concrete comes out to be equal to 26.60 N/mm^2 .

A-1 SELECTION OF WATER CEMENT RATIO

From table 5 of IS 456 on page no. 20, Maximum water-cement ratio=0.55

Based on experience, adopt water-cement ratio as 0.50, for the target mean strength and required workability

0.50<0.55, hence O.K.

A-2 SELECTION OF WATER CONTENT

From Table 2 of IS 10262- 2009,

Maximum water content = 186 Kg (for Nominal maximum size of aggregate — 20 mm)

Table for Correction in water content

Parameters	Values as per Standard reference condition	Current stipulations	Departure	Correction in Water Content
Slump	50 mm	150 mm	+100mm	+22.32
Shape of Aggregate	Angular	Gravel with Crushed stone		-20
Admixture	Fosroc SP430	Based on Experience		-16.50
			Total	-14.18


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So, estimated water content = $186 - 14.18 = 171.82$ litre /m³

A-3 CALCULATION OF CEMENT CONTENT

Water-cement ratio = 0.50

Corrected water content = 171.82 litre /m³

$$\text{Cement content} = \frac{171.82}{0.50} = 343.64 \text{ Kg/m}^3$$

Minimum cement Content for moderate exposure condition = 300 kg/m³

343.64 kg/m³ > 300 kg/m³, hence, OK.

This value is to be checked for durability requirement from IS: 456.

A-4 PROPORTIONS OF VOLUME OF COARSE AGGREGATE AND FINE AGGREGATE CONTENT

From Table 3 of IS 10262:2009,

the volume of coarse aggregate per unit volume of total aggregate corresponding to 20mm size aggregate and fine aggregate (Zone II) for the water-cement ratio of 0.50 is 0.62

For W/C of 0.50, volume of coarse aggregate = $(0.62+0.0) = 0.62$

The volume of coarse aggregate per unit volume of total aggregate is 0.62

Volume of fine aggregate is taken as 0.38

A-5 MIX CALCULATIONS

The mix calculations per unit volume of concrete shall be as follows:

a) Volume of concrete = 1 m³

$$\begin{aligned} \text{b) Volume of cement} &= \frac{\text{Mass of cement}}{\text{Specific gravity of cement}} \times \frac{1}{1000} \\ &= \frac{343.64}{3.09} \times \frac{1}{1000} = 0.1112 \text{ m}^3 \end{aligned}$$

$$\begin{aligned} \text{c) Volume of water} &= \frac{\text{Mass of water}}{\text{Specific gravity of water}} \times \frac{1}{1000} \\ &= \frac{171.82}{1} \times \frac{1}{1000} = 0.171 \text{ m}^3 \end{aligned}$$

$$\begin{aligned} \text{d) Volume of Chemical Admixture} &= \frac{\text{Mass of admixture}}{\text{Specific gravity of admixture}} \times \frac{1}{1000} \\ &= \frac{3.43}{1.20} \times \frac{1}{1000} = \mathbf{0.00286 \text{ m}^3} \end{aligned}$$

$$\begin{aligned} \text{e) Volume of all in aggregate} &= [\mathbf{a} - (\mathbf{b} + \mathbf{c} + \mathbf{d})] \\ &= \mathbf{0.714106 \text{ m}^3} \end{aligned}$$

$$\begin{aligned} \text{f) Mass of coarse aggregate} &= e \times \text{Vol of coarse aggregate} \times \text{Sp. gravity of coarse aggregate} \times 1000 \\ &= 0.714106 \times 0.62 \times 2.86 \times 1000 \\ &= \mathbf{1266.253 \text{ Kg}} \end{aligned}$$

$$\begin{aligned} \text{g) Mass of fine aggregate} &= e \times \text{Vol of fine aggregate} \times \text{Sp. gravity of fine aggregate} \times 1000 \\ &= 0.714106 \times 0.38 \times 2.64 \times 1000 \\ &= \mathbf{716.39 \text{ Kg}} \end{aligned}$$

A-6 (1) MIX PROPORTIONS FOR TRIAL NUMBER 1

$$\text{Water-cement ratio} = 0.50$$

$$\text{Quantity of cement} = 343.64 \text{ Kg/m}^3$$

$$\text{Quantity of Water taken} = 171.82 \text{ Kg/m}^3$$

$$\text{Quantity of Fine aggregate} = 716.3911 \text{ Kg/m}^3$$

$$\text{Quantity of Coarse aggregate} = 1266.253 \text{ Kg/m}^3$$

$$\text{Quantity of Admixture @1.0\%} = 3.4364 \text{ Kg/m}^3$$

A-6 (2) MIX PROPORTIONS FOR TRIAL NUMBER 2

$$\text{Water-cement ratio} = 0.45$$

$$\text{Quantity of cement} = 381.8222 \text{ Kg/m}^3$$

$$\text{Quantity of Water taken} = 171.82 \text{ Kg/m}^3$$

$$\text{Quantity of Fine aggregate} = 685.1579 \text{ Kg/m}^3$$

$$\text{Quantity of Coarse aggregate} = 1263.839 \text{ Kg/m}^3$$

$$\text{Quantity of Admixture @1.0\%} = 3.818222 \text{ Kg/m}^3$$



A-6 (3) MIX PROPORTIONS FOR TRIAL NUMBER 3

Water-cement ratio	=	0.43
Quantity of cement	=	399.5814 Kg/m ³
Quantity of Water taken	=	171.82 Kg/m ³
Quantity of Fine aggregate	=	672.0545 Kg/m ³
Quantity of Coarse aggregate	=	1261.173 Kg/m ³
Quantity of Admixture @1.0%	=	3.995814 Kg/m ³

The concrete cubes (150mm x 150mm) were cast with these mixes and the following results were obtained.

Mix No.	Water	Cement	W/C Ratio	Slump (mm)	28-days Compressive Strength. N/mm ² .
1	171.82	343.64	0.50	165	28.69
2	171.82	381.8222	0.45	121	27.15
3	171.82	399.5814	0.43	95	27.32

RECOMMENDATIONS. The 28 days compressive strength of trial mix no.1 fulfills the design criteria as per IS 10262:2009. Hence recommended being adopted for M-20 grade Cement concrete. Quantities of Material for one cubic meter of concrete are

Water-cement ratio	=	0.50
Quantity of cement	=	343.64 Kg/m ³
Quantity of Water taken	=	171.82 Kg/m ³
Quantity of Fine aggregate	=	716.3911 Kg/m ³
Quantity of Coarse aggregate	=	1266.253 Kg/m ³
Quantity of Admixture @1.0%	=	3.4364 Kg/m ³

The above concrete mix design holds good for the samples provided that the parameters taken for the mix design remain the same as taken and aggregates fall within close to their individual grading as mentioned above. The design was on saturated surface dry condition of aggregate when computing the requirement of mixing water, allowance must be made for free surface moisture content or for water absorption dry aggregate Necessary adjustment shall be made in the mass of aggregate. In actual execution, if there is a change in the grading of different materials, the proportions of mixing materials can be changed to achieve the required grading. Quantity of aggregates and water may please be adjusted according to the free moisture present in the aggregates at the time of mix preparations.

K. Gayathri Kiran
21/3/24
Signature of Lab Incharge

Ranj
Signature of HOD

Mani
Signature of Principal
Satya Institute of Technology And Management
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SITAM



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EAMCET CODE: SGVP ACCREDITED BY NAAC, RECOGNISED UNDER 2(F) AND 12 (B) OF UGC APPROVED BY AICTE, NEW DELHI, JNTU - GV CODE: B6
(PERMANENTLY AFFILIATED TO JNTU-GV, RECOGNISED BY SBTET, GOVERNMENT OF A.P.)

REPORT NO : SITAM/SM/022

DATE: 12.03.2024

Project	Construction of Apartment [stilt + Ground Floor + 3 Upper floors]
Project	RCC roof stilt and ground floor residential Building
Location	1-17/13-1plot no MIG-234 vuda colony phase-iii survey no 13 vizianagaram
Tests Conducted for	JR CONSTRUCTIONS
Reference	Sample submitted
Description	Testing of reinforcement steel (SIMHADRI Fe500D)8mm and 10mm dia.
No. of specimens tested	06 (Six only)

TEST RESULTS

Date of Testing: 8.03.2024

The following are the results of tests conducted on reinforcement steel samples, pertaining to the work cited above.

	Property	8mm	10mm	Requirements as per IS: 1786-2008
1	Weight/Meter (Kg/m)	0.386	0.612	0.363 to 0.395 for 8mm 0.567 to 0.617 for 10mm
2	Yield Stress (YS) (N/mm ²)	593	604	500 N/mm ² (minimum)
3	Tensile Strength (TS) (N/mm ²)	696	698	500 (minimum)
4	TS/YS Ratio	1.17	1.15	≥ 1.10, but TS not less than 565.0 N/mm ²
5	Elongation (%)	22.0	25.0	16 % (minimum)
6	Bend Test	satisfactory	satisfactory	No visible cracks, tested as per IS 1599
7	Re bend Test	satisfactory	satisfactory	No visible cracks, tested as per IS 1599

The tested samples are satisfying the requirements as per IS 1786-2008 table -3 for Fe 500D

K. Gayatri Kiran
12/3/24
Signature of Lab Incharge

Signature of HOD

Signature of Principal

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VIZIANAGARAM

SBI FORT BR-31744546678 Book

14-Mar-24 to 15-Mar-24

Page 1

Date	Particulars	Narration	Vch Type	Vch No.	Debit	Credit
14-Mar-24	To Opening Balance				8,30,823.61	
14-Mar-24	By Repairs & Maintenance Building	T/W 1. PURCHASE OF PAINTS FROM AYYAPPA ENTERPRISES	Payment			20,210.00
	By Ramarapu Bangari	T/W AMOUNT PAID TO R BANGARI	Payment			10,000.00
	To TUITION FEE	DUM3579400	Receipt		11,400.00	
	By N SATISH KUMAR	T/W 1. SALARY ADVANCE TO N SATISH KUMAR, 2. SALARY PAID	Payment			1,24,968.00
	To TUITION FEE	DUM3569001	Receipt		11,400.00	
	To TUITION FEE	DUM3594603	Receipt		11,400.00	
	To TUITION FEE	DUM3582953	Receipt		11,400.00	
15-Mar-24	To Advertisement Expenses	AMOUNT RETURNED	Receipt		10,000.00	
	To JR Constructions	UPI/CR/407577741436	Receipt		30,000.00	
	To JR Constructions	UPI/CR/407530658828	Receipt		30,000.00	
	To TUITION FEE	DUM3712602	Receipt		11,400.00	
	To TUITION FEE	DUM3708364	Receipt		10,000.00	
	To TUITION FEE	DUM3712854	Receipt		9,000.00	
	To TUITION FEE	DUM3709799	Receipt		15,000.00	
					9,91,823.61	1,55,178.00
	By Closing Balance					8,36,645.61
					9,91,823.61	9,91,823.61

[Handwritten Signature]

FINANCE OFFICER
SITAM
VIZIANAGARAM

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