

VEE VEE CONSTRUCTIONS

DESIGNER AND BUILDERS

Er.B. ASHOK KUMAR B.E., MBA

MOBILE NO: 9791202260

02.01.2019

To

The Principal,
Indra Ganesan College of Engineering,
Manikandam,
Trichy, 620 012

Dear Sir/Madam,

Subject: Enquiry Regarding consultancy work brochure – Concrete Mix Design M35

We should greatly thank you for sharing the Consultancy Work Brochure of Indra Ganesan College of Engineering. We are particularly required the Concrete Mix Design M35. Kindly provide information on the cost structure for the Concrete Mix Design M35.

For vee vee constructions

B. ASHOK KUMAR

Authorized Signature

Dr. G. Balakrishnan, M.E., Ph.D.

Principal

Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.





09.01.2019

Trichy

To

VEE VEE Constructions
No.22, Bharathiyar Street,
Rms Colony, Edamalaipattipudur
Trichy-620012

Respected Sir,

Sub: Submission of consultancy work quotation- Reg.

Greetings from Indra Ganesan College of Engineering!!!

We thank you for considering our consultancy work brochure and we received your requirements about Concrete Mix Design M35. In this connection, we would like to inform you that the consultancy charges for the following test is furnished here.

S.NO	TYPE OF TEST	CHARGES (IN Rs.)	UNIT
1	Concrete Mix Design M35	15000	1
	TOTAL	15000	

We request you to kindly consider the above proposed consultancy charges and we are eagerly awaiting for your kind sanction of the consultancy work.

Thanking you

PROJECT INVESTIGATOR

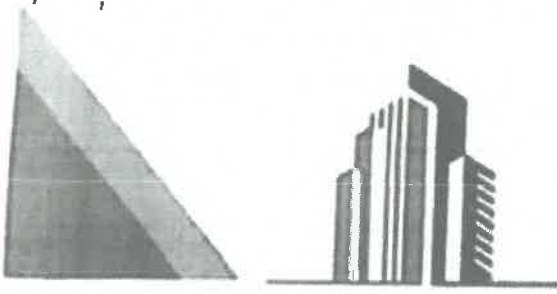


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PRINCIPAL

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VEE VEE CONSTRUCTIONS

DESIGNER AND BUILDERS

Er.B. ASHOK KUMAR B.E., MBA

MOBILE NO: 9791202260

21.01.2019

To


The Principal,
Indra Ganesan College of Engineering,
Manikandam,
Trichy-620 012

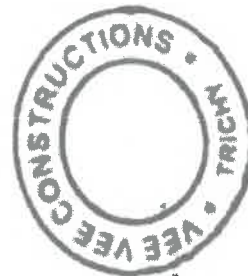
Dear Sir/ Madam,


Subject: Sanctioned Amount- Concrete Mix Design M35.

We have accepted the consultancy work on Concrete Mix Design M35. We are decided to grant a amount of Rs. 15000 and assure you that our team will be helpful in the entire required situation to complete the project.

For vee vee constructions


B. ASHOK KUMAR
Authorized Signature




Dr. G. Balakrishnan, M.E., Ph.D.
Principal
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Indra Ganesan

COLLEGE OF ENGINEERING

Madurai Main Road (NH-45B), Manikandam, Tiruchirapalli- 620 012
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

CONSULTANCY PROJECT ENDOWMENT REPORT

CONCRETE MIX DESIGN

SUBMITTED

TO

**No.22, Bharathiyar Street
Rms Colony, Edamalaipattipudur
Trichy-620012**

Delivery Date: 21.02.2019


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CONSULTANCY TEST REPORT

Date of Casting: 21.01.2019

Date of Testing: 21.02.2019

Test conducted : CONCRETE MIX DESIGN M35

Test Conducted for Cement:

S.No	Name of the Test	Test Result	Range
1	Specific gravity of cement	3.12	3.10-3.15
2	Fineness of cement	250 m ² / kg	240-300 m ² / kg
3	Consistency test on cement	27%	25-30%
4	Setting time of cement	30-60 min	30-60 min

Test Conducted for Fine Aggregate:

S.No	Name of the Test	Test Result	Range
1	Specific gravity of fine aggregate	2.6	2.5-2.9
2	Grading of fine aggregate	2.3	2.22-3.2
3	Water absorption test on fine aggregate	1%	1-3%

Test Conducted for Coarse Aggregate:

S.No	Name of the Test	Test Result	Range
1	Specific gravity of coarse aggregate	2.79	2.5-2.9
2	Water absorption test on coarse aggregate	0.6%	0.5-2%
3	Elongation index	9.1%	5-10%
4	Flakiness index	17.1%	15-20%

Admixture type:

Calcium chloride (1.8%)



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STIPULATION FOR PROPORTIONING:

- a) Grade designation : M35
- b) Type of cement : OPC 43 grade
- c) Type of mineral admixture : Calcium chloride
- d) Maximum nominal size of aggregate : 20mm
- e) Minimum cement content : 220 kg/m³
- f) Maximum water cement ratio : 0.60
- g) Workability : 100mm
- h) Exposure condition : Mild
- i) Method of concrete placing : Pumping
- j). Degree of supervision : Good
- k) Type of aggregate : Angular aggregate
- l) Maximum cement(OPC) content : 400 kg/m³

1. Target strength for mix proportioning (M 35 grade)

$$f'_{ck} = f_{ck} + 1.65 s$$

From IS 10262:2009, $s = 5 \text{ N/mm}^2$

$$\text{Target strength} = 35 + 1.65 \times 3.50$$
$$= 40.77 \text{ N/mm}^2$$

2. Water cement ratio

From Table 5 of IS 456,


Max. Water- cement ratio = 0.60

Adopt water cement ratio = 0.40

$$0.60 < 0.45$$

Hence ok

3. Water content


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Max. water content for

$$100 \text{ slump} = 186 + 4/100 \times 186$$

$$= 193.81 \text{ liters}$$

$$\text{Water content} = 193.81 \times 0.71$$

$$= 138 \text{ liters}$$

4. Cement and Calcium chloride content

$$\text{Water-cement ratio} = 0.40$$

$$\text{Cement content} = 138/0.40$$

$$= 345 \text{ kg/ m}^3$$

$$\text{Min. cement content mild} = 220 \text{ kg/ m}^3$$

$$345 \text{ kg/ m}^3 > 220 \text{ kg/ m}^3$$

$$\text{Cementitious material content} = 345 \times 1.10$$

$$= 380 \text{ kg/ m}^3$$

$$\text{Water content} = 138 \text{ liters}$$

$$\text{Water cement ratio} = 138/380$$

$$= 0.363$$

Calcium chloride @ 1.5% of

$$\text{Total cementitious content} = 380 \times 1.5/100$$

$$= 5.77 \text{ kg/ m}^3$$

$$\text{Cement (OPC)} = 380 - 5.77$$

$$= 374.23 \text{ kg/ m}^3$$

Saving of cement while using

$$\text{Calcium chloride} = 345 - 374.23$$

$$= -29.23 \text{ kg/ m}^3$$

5. Volume of coarse and fine aggregate content

$$\text{The volume of coarse aggregate} = 0.62 \times 0.9$$

$$= 0.558$$



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The volume of fine aggregate = $1 - 0.38$
= 0.62

6. Mix calculation

i. volume of concrete = 1 m^3

ii. volume of cement = mass of cement / specific gravity of cement $\times 1/1000$
= $374.23 / 3.12 \times 1/1000$
= 0.119 m^3


iii. volume of water = mass of water / specific gravity of water $\times 1/1000$
= $150 / 1 \times 1/1000$
= 0.15 m^3

iv. Volume of chemical admixture = mass of chemical ad. / sp.gravity of chemical ad. $\times 1/1000$
= $6 / 1.145 \times 1/1000$
= 0.005 m^3

v. Volume of all in aggregate = $(a - (b + c + a))$
= $1 - (0.12 + 0.0145 + 0.007)$
= 0.628 m^3

vi. Mass of coarse aggregate = e \times volume of coarse aggregate specific $\times 1000$
= $0.628 \times 0.558 \times 2.74 \times 1000$
= 981.18 kg

vii. Mass of fine aggregate = e \times volume of fine aggregate \times specific gravity of fine aggregate $\times 1000$
= $0.628 \times 0.44 \times 2.74 \times 1000$
= 757.1 kg


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MIX PROPORTIONS

Cement = 485 kg/ m³

Fly ash = 38.5 kg/ m³

Water = 206 kg/ m³

Fine aggregate = 672 kg/ m³

Coarse aggregate = 1103 kg/ m³

Cement: Coarse Aggregate: Fine Aggregate = 1:1.61: 2.63

Water-cement ratio = 0.363



TEST CONDUCTED



PRINCIPAL

Dr.S.BHARATHIRAJA



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21.02.2019

Trichy

UTILIZATION CERTIFICATE

Certified that an amount of Rs 15000/- (Fifteen Thousand Only) sanctioned during the year 2021-2022 in favor of civil engineering received from VEE VEE Constructions has been utilized for the project consultancy work titled "Concrete Mix Design M35 Grade". The purpose for which it was sanctioned has been duly fulfilled and delivered as per the conditions of the grant.


PROJECT INVESTIGATOR




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