GSTIN: 33AABFS9025Q1ZS

Estd:1988

S.K.V. Engineering Constructions

119/54-A, Amma Mandapam Road, Srirangam, Trichy - 620 006.
Ph: 0431-2433132, Mob: +91 94431 44132 , +91 95789 63440
Email: skvconstruct@yahoo.com Web : www.skvconstructions.com

Date: 04.11.2019

To

The Principal,

Indra Ganesan College of Engineering,

Manikandam,

Trichy-620 012

Dear Sir/Madam,

We are in need of a Concrete Mix Design M40. We wish to avail your services. In this regard, send your cost estimation to favour the above mentioned work.

Thanking you

For, S.K.V Engineering Constructions

S.R. Sridhar

Structural Engineer

Dr. G. Balakrishnan, M.E., Ph.D
Principal
Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.

Dr.S.BHARATHI RAJA, B.E.,M.Tech.,Ph.D.,FIE
Principal

Indra Ganesan
COLLEGE OF ENGINEERING

13.11.2019

To

S.K.V.Engineering Constructions

119/54-A, Amma Mandapam Road

Srirangam, Trichy-620 006

Respected Sir,

Sub: Submission of consultancy work quotation- Reg.

Greetings from Indra Ganesan College of Engineering!!!

With reference to your letter dated 04.11.2019, we would like to inform you that the estimated cost for the Concrete Mix Design M40 is approximately Rs.15000/-. Please note that this estimation is subjected to change depending on any further project refinements or unforeseen circumstances.

S.NO	TYPE OF TEST	UNIT	TOTAL CHARGES IN Rs.
1	Concrete Mix Design M40	1	15000

If you have any question or require additional information regarding the cost estimation or any other aspects of the project, please do not hesitate to contact us.

PROJECT INVESTIGATOR

INDRA GANESAN COLLEGE OF ENGINEERING TRICHY-12

Dr. S. BHARATHI RAJA
PRINCIPAL

Dr. G. Balakrishnan, M.E., Ph.D.
Principal
Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.

Madurai Main Road,
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Ph: 0431-2433132, Mob: +91 94431 44132 , +91 95789 63440
Email: skvconstruct@yahoo.com Web : www.skvconstructions.com

Date: 21.11.2019

To

The Principal,

Indra Ganesan College of Engineering,

Manikandam,

Trichy-620 012

Dear Sir/ Madam,

Subject: Sanctioned Amount to Cost Estimation for Concrete Mix Design M40.

We granted the amount of Rs.15000/-, in response to your quotation dated on 13.11.2019 for the successful delivery of the Concrete Mix Design M40.

If you have any queries, let us know we will clarify you with the same.

Thanking you

For. S.K.V Engineering Constructions

S.R. Sridhar

Structural Engineer

Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
Indra Ganesan College of Engineering
IG Valley, Madurai Main Road,
Manikandam, Trichy-620 012

Indra Ganesan
COLLEGE OF ENGINEERING
Madural Main Road (NH-45B),Manikandam,Tiruchirapalli- 620 012
Approved by AICTE, NewDelhi & Affiliated to Anna University, Chennai

CONSULTANCY PROJECT ENDOWMENT TEST REPORT

CONCRETE MIX DESIGN

SUBMITTED

TO

S.K.V.Engineering Constructions

119/54-A, Amma Mandapam Road

Srirangam,Trichy-620006

Delivery Date: 23.12.2019

Dr. G. Balakrishnan, M.E., Ph.D
Principal
Indra Ganesan College of Engineering
IG Valley, Madural Main Road
Manikandam, Trichy-620 012.

CONSULTANCY TEST REPORT

Date of Casting: 21.11.2019 **Date of Testing: 23.12.2019**

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	380 m^2/ kg	300-400 m^2/ kg
3	Consistency test on cement	31%	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	2.65	2.5-2.9
2	Grading of fine aggregate	2.29	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%	5-10%
4	Flakiness index	18%	15-20%

STIPULATION FOR PROPORTIONING:

a) Grade designation : M40

b) Type of cement : OPC 43 grade

c) Type of mineral admixture : 1.5% of polypropylene

d) Maximum nominal size of aggregate : 20mm

e) Minimum cement content : 320 kg/m^3

f) Maximum water cement ratio : 0.45

g) Workability : 100mm

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h) Exposure condition : Moderate

i) Method of concrete placing : Pumping

j). Degree of supervision : Good

k) Type of aggregate : Crushed angular aggregate

Maximum cement(OPC) content : 450 kg/m³

1. Target strength for mix proportioning (M 40 grade)

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

From IS 10262:2009, s = 5 N/mm²

Target strength = 40+1.65x5

= 48.25 N/mm²

2. Water cement ratio

From Table 5 of IS 456,

Max. Water- cement ratio = 0.45

Adopt water cement ratio = 0.40

0.40< 0.45

Hence ok

3. Water content

Max. water content for

100 slump =186+6/100x186

= 197 liters

Water content =197 x 0.71

= 140 liters

4. Cement and Calcium chloride content

Water-cement ratio = 0.40

Cement content = 140/0.40

= 350 kg/ m³

Min. cement content serve = 320 kg/ m³

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350 kg/ m³ > 320 kg/ m³

Cementitious material content = 350 x 1.10

= 385 kg/ m³

Water content = 140 liters

Water cement ratio = 140/385

= 0.364

Total cementitious content = 385x 1.5/100

= 5.77 kg/ m³

Cement (OPC) = 385-5.77

= 379.2 kg/ m³

Saving of cement while using

Polypropylene = 350-379.2

= -29.2 kg/ m³

5. Volume of coarse and fine aggregate content

The volume of coarse aggregate = 0.62x0.9

= 0.56

The volume of fine aggregate =1-0.56

= 0.44

6. Mix calculation

i. volume of concrete =1m³

ii. volume of cement = mass of cement/ specific gravity of cement x 1/1000

= 379.2/-29.2 x 1/1000

= -0.12 m³

iii. volume of water = mass of water / specific gravity of water x 1/1000

= 140/1 x 1/1000

= 0.140 m³

iv. Volume of chemical admixture = mass of chemical ad. /specific gravity of chemical ad. x 1/1000

Dr. G. Balakrishnan, M.E., Ph.D.,
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Indra Ganesan College of Engineering

= 7/1.145 x 1/1000

= 0.007 m^3

v. Volume of all in aggregate = (a- (b+c+a))

= 1- (0.12+0.002+0.140 + 0.007)

= 0.971 m^3

vi. Mass of coarse aggregate = e x volume of coarse aggregate specific x 1000

= 0.971 x 0.56 x 2.74 x1000

= 1489.9 kg

vii. Mass of fine aggregate = ex volume of fine aggregate x specific gravity of fine aggregate x1000

= 0.971 x 0.44x 2.74 x 1000

= 1170.63 kg

MIX PROPORTIONS

Cement	= 379 kg/ m^3
Water	=140 kg/ m^3
Fine aggregate	= 1170 kg/ m^3
Coarse aggregate	= 1489 kg/ m^3
Water-cement ratio	= 0.364

TEST CONDUCTED

PRINCIPAL

Dr.S.BHARATHIRAJA

Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
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Dr.S.BHARATHI RAJA, B.E.,M.Tech.,Ph.D.,FIE
Principal

Indra Ganesan
COLLEGE OF ENGINEERING

23.12.2019

Trichy.

UTILIZATION CERTIFICATE

Certified that an amount of **Rs.15000/- (Fifteen Thousand Only)** sanctioned during the year (2019-2020) in favour of civil engineering received from **S.K.V.Engineering Constructions** has been utilized for the project consultancy work titled **"Concrete Mix Design M40".** The purpose for which it was sanctioned has been duly fulfilled and delivered as per the conditions of the grant.

PROJECT INVESTIGATOR

INDRA GANESAN COLLEGE OF ENGINEERING TRICHY-12

Dr. S. BHARATHI RAJA
PRINCIPAL

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