

Report on
The Major Project II

**COMPACTION AND SHEAR BEHAVIOUR OF SOIL BLENDED
WITH SILICA FUME AND CEMENT**

Submitted in Partial Fulfillment for the Award of the Degree of

MASTER OF TECHNOLOGY

IN

CIVIL ENGINEERING

With Specialization in

GEOTECHNICAL ENGINEERING

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DELHI TECHNOLOGICAL UNIVERSITY, DELHI
CERTIFICATE

This is to certify that the Major Project II entitled “COMPACTION AND SHEAR BEHAVIOUR OF SOIL BLENDED WITH SILICA FUME AND CEMENT” is a bona fide record of work carried out by Mr. Jay Shanker (Roll No. 2k12/GTE/08) under my guidance and supervision, during the session 2014 in partial fulfillment of the requirement for the degree of Master of Technology in Civil Engineering (Geotechnical Engineering) from Delhi Technological University, Delhi.

The work embodied in this major project II has not been submitted for the award of any other degree to the best of our knowledge.

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DECLARATION

I, hereby declare that the work being presented in this project report entitled “**Compaction and Shear Behaviour of Soil Blended with Silica Fume and Cement**” is the bonafide work carried out by me as a part of major project in partial fulfilment of the requirement for the award of the degree of Master of Technology in Geotechnical Engineering.

The matter presented in this report has not been submitted by me for the award of any other degree.

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Contents	Page no.
List of Tables	viii
List of Figures	ix
List of picture	xii
List of Abbreviation & Notations	xiii
Absrtact	xiv
Chapter – 1	
1.1 Introduction	1
1.2 Objectives of Study	2
1.3 Scope of Study	2
Chapter – 2	
LITERATURE REVIEW	
2.1 Principle of Soil Stabilization	3
2.2 Advantages of Soil Stabilization	3-4
2.3 Review of Some Previous Works	4-7
Chapter –3	
EXPERIMENTAL INVESTIGATIONS	
3.1 Purpose	8
3.2 Materials	
3.2.1 Natural Soil	9
3.2.2 Silica Fume	9
3.2.3 Cement	10
3.3 XRD Analysis	10
3.3.1 XRD pattern of Soil	11
3.3.2XRD pattern of Silica Fume	12
3.3.3 XRD pattern of Cement	13
3.4 Samples Preparation	14
3.5 Experimentations	14
3.5.1 Specific gravity	14-15
3.5.2 Hydrometer test	15

3.5.3 Liquid Limit	16
3.5.4 Plastic Limit	16-17
3.5.5 Particle Size Distribution	17-18
3.5.6 Proctor Compaction Test	18-19
3.5.7 Unconfined Compressive Strength	19-20

Chapter 4

RESULTS AND DISCUSSIONS

4.1 Engineering Properties of Soil	
4.1.1 Specific Gravity of Soil	21
4.1.2 Grain Size Distribution	21-24
4.1.3 Consistency Limit Determination	25-26
4.1.4 Results of Proctor Compaction Test	26-28
4.1.5 Unconfined Compressive Strength Test	28-30
4.2 Engineering Properties of Various Mixes	30
4.2.1 Engineering Properties of M1	31-33
4.2.2 Engineering Properties of M2	33-35
4.2.3 Engineering Properties of M3	36-38
4.2.4 Engineering Properties of M4	38-40
4.2.5 Engineering Properties of M5	41-43
4.2.6 Engineering Properties of M6	43-45
4.2.7 Engineering Properties of M7	46-48
4.2.8 Engineering Properties of M8	48-50
4.2.9 Engineering Properties of M9	51-53
4.2.10 Engineering Properties of M10	53-55
4.2.11 Engineering Properties of M11	56-58
4.2.12 Engineering Properties of M12	58-60
4.2.13 Engineering Properties of M13	61-63
4.2.14 Engineering Properties of M14	63-65
4.2.15 Engineering Properties of M15	66-70
4.3 Compilation of Results	71
4.4 Discussion	72-77

Chapter 5

Conclusions and Recommendations for Future Work

5.1 Conclusions	78
5.2 Recommendations for Future Work	78-79
REFERENCES	80-81
BIO-DATA	82

LIST OF TABLES

Table no.	Title of Table	Page no.
3.1	Chemical Composition of Silica Fume	9
3.2	Values of G for Various types of Soil	15
4.1	Observation for Calibration of Hydrometer	22
4.2	Observation and Calculation of Hydrometer Reading	23
4.3	Particle Size Distribution	24
4.4	Observation for Water content of Soil	25
4.5	Observation for plastic limit of Soil	26
4.6(a)	Observation for Bulk density of Soil	26
4.6(b)	Observation for Water Content	27
4.6(c)	Observation for Dry density	27
4.7	Observation for UCS of Soil	28
4.8	Mix Designation	30
4.9	Variation of Engineering Properties of Soil mixes	71

LIST OF FIGURES

Fig.no.	Title of Figure	Page no.
3.1	XRD Pattern of Soil	11
3.2	XRD Pattern of Silica Fume	12
3.3	XRD Pattern of Cement	13
4.1	Calibration Curve of Hydrometer	22
4.2	Grain Size Distribution Curve of Soil	24
4.3	Liquid Limit Curve of Soil	25
4.4	Relation between Dry density and Water Content of Soil	28
4.5	Stress Strain Curve of Soil after 1 day	29
4.6	Stress Strain Curve of Soil after 7 days	29
4.7	Stress Strain Curve of Soil after 28 days	30
4.8	Liquid Limit Curve of M1	31
4.9	Relation between Dry density and Water Content M1	31
4.10	Stress Strain Curve of M1 after 1 day	32
4.11	Stress Strain Curve of M1 after 7 days	32
4.12	Stress Strain Curve of M1 after 28 days	33
4.13	Liquid Limit Curve of M2	33
4.14	Relation between Dry density and Water Content M2	34
4.15	Stress Strain Curve of M2 after 1 day	34
4.16	Stress Strain Curve of M2 after 7 days	35
4.17	Stress Strain Curve of M2 after 28 days	35
4.18	Liquid Limit Curve of M3	36
4.19	Relation between Dry density and Water Content M3	36
4.20	Stress Strain Curve of M3 after 1 day	37
4.21	Stress Strain Curve of M3 after 7 days	37
4.22	Stress Strain Curve of M3 after 28 days	38
4.23	Liquid Limit Curve of M4	38
4.24	Relation between Dry density and Water Content M4	39
4.25	Stress Strain Curve of M4 after 1 day	39
4.26	Stress Strain Curve of M4 after 7 days	40
4.27	Stress Strain Curve of M4 after 28 days	40
4.28	Liquid Limit Curve of M5	41
4.29	Relation between Dry density and Water Content M5	41
4.30	Stress Strain Curve of M5 after 1 day	42
4.31	Stress Strain Curve of M5 after 7 days	42
4.32	Stress Strain Curve of M5 after 28 days	43
4.33	Liquid Limit Curve of M6	43
4.34	Relation between Dry density and Water Content M6	44
4.35	Stress Strain Curve of M6 after 1 day	44
4.36	Stress Strain Curve of M6 after 7 days	45
4.37	Stress Strain Curve of M6 after 28 days	45
4.38	Liquid Limit Curve of M7	46
4.39	Relation between Dry density and Water Content M7	46
4.40	Stress Strain Curve of M7 after 1 day	47
4.41	Stress Strain Curve of M7 after 7 days	47

LIST OF FIGURES

Fig.no.	Title of Figure	Page no.
4.42	Stress Strain Curve of M7 after 28 days	48
4.43	Liquid Limit Curve of M8	48
4.44	Relation between Dry density and Water Content M8	49
4.45	Stress Strain Curve of M8 after 1 day	49
4.46	Stress Strain Curve of M8 after 7 days	50
4.47	Stress Strain Curve of M8 after 28 days	50
4.48	Liquid Limit Curve of M9	51
4.49	Relation between Dry density and Water Content M9	51
4.50	Stress Strain Curve of M9 after 1 day	52
4.51	Stress Strain Curve of M9 after 7 days	52
4.52	Stress Strain Curve of M9 after 28 days	53
4.53	Liquid Limit Curve of M10	53
4.54	Relation between Dry density and Water Content M10	54
4.55	Stress Strain Curve of M10 after 1 day	54
4.56	Stress Strain Curve of M10 after 7 days	55
4.57	Stress Strain Curve of M10 after 28 days	55
4.58	Liquid Limit Curve of M11	56
4.59	Relation between Dry density and Water Content M11	56
4.60	Stress Strain Curve of M11 after 1 day	57
4.61	Stress Strain Curve of M11 after 7 days	57
4.62	Stress Strain Curve of M11 after 28 days	58
4.63	Liquid Limit Curve of M12	58
4.64	Relation between Dry density and Water Content M12	59
4.65	Stress Strain Curve of M12 after 1 day	59
4.66	Stress Strain Curve of M12 after 7 days	60
4.67	Stress Strain Curve of M12 after 28 days	60
4.68	Liquid Limit Curve of M13	61
4.69	Relation between Dry density and Water Content M13	61
4.70	Stress Strain Curve of M13 after 1 day	62
4.71	Stress Strain Curve of M13 after 7 days	62
4.72	Stress Strain Curve of M13 after 28 days	63
4.73	Liquid Limit Curve of M14	63
4.74	Relation between Dry density and Water Content M14	64
4.75	Stress Strain Curve of M14 after 1 day	64
4.76	Stress Strain Curve of M14 after 7 days	65
4.77	Stress Strain Curve of M14 after 28 days	65
4.78	Liquid Limit Curve of M15	66
4.79	Relation between Dry density and Water Content M15	66
4.80	Stress Strain Curve of M15 after 1 day	67
4.81	Stress Strain Curve of M15 after 7 days	67
4.82	Stress Strain Curve of M15 after 28 days	68
4.83	Variation of specific gravity of different mixes	72

LIST OF FIGURES

Fig.no.	Title of Figure	Page no.
4.84	Variation of Consistency Limit of Soil with 0% Silica Fume and different Cement content	73
4.85	Variation of Consistency Limit of Soil with 3% Silica Fume and different Cement content	73
4.86	Variation of Consistency Limit of Soil with 5% Silica Fume and different Cement content	74
4.87	Variation of Consistency Limit of Soil with 7% Silica Fume and different Cement content	74
4.88	Variation of O.M.C of different mixes	75
4.89	Variation of MDD of different mixes	75
4.90	Variation of UCS of Soil with 0% Silica Fume and different Cement content	76
4.91	Variation of UCS of Soil with 3% Silica Fume and different Cement content	77
4.92	Variation of UCS of Soil with 5% Silica Fume and different Cement content	77
4.93	Variation of UCS of Soil with 7% Silica Fume and different Cement content	77

List of Picture

S.no.	Title of picture	Pg.no.
1	Hydrometer test apparatus	15
2	Liquid limit test apparatus	16
3	Plastic limit method	17
4	Standard Proctor compaction test apparatus	19
5	Unconfined compressive strength test apparatus	20
6	Unconfined compressive strength test samples	68
7	Unconfined compressive strength test apparatus with sample	69
8	Failure of sample	69
9	Failure pattern of sample	70
10	Failure pattern of sample	70

List of Abbreviation & Notations

S.NO.	Abbreviation	Full form
1	O.M.C	Optimum moisture content
2	M.D.D	Maximum dry density
3	W_w	Weight of water
4	W_s	Weight of solids
5	W	Water content
6	M_w	Mass of water
7	M_s	Mass of solids
8	LL	Liquid limit
9	PL	Plastic limit
10	Y	Bulk unit weight
11	Y_d	Dry unit weight
12	P.I	Plasticity index
13	G	Specific gravity
14	UCS	Unconfined compressive strength

ABSTRACT

The main objective of this study is to observe the effect of silica fume and cement on the engineering properties of the silty soil. Silty Soil with low plasticity was used in this study as a natural soil. A series of laboratory experiments have been carried out and varieties of samples were made by mixing soil with both silica fume and cement. Three different percentages of silica fume (3%, 5%, and 7%) and four different percentages of cement (0%, 3%, 5% and 7%) were used as a stabilization materials. Test results show that addition of cement and cement with silica fume decrease the maximum dry density and increases the optimum moisture content. The unconfined compressive strength of the soil was found to increase significantly with increase in the cement and cement with silica fume content especially after a long curing period. However on addition of 5% cement with 7% silica fume, the unconfined compressive strength increases minutely. Further addition of cement decreases the unconfined compressive strength after a long curing.