GUIDELINES FOR SUBMISSION AND FORMAT FOR

BE (CIVIL) PROJECTS

DEPARTMENT OF CIVIL ENGINEERING

NED UNIVERSITY OF ENGINEERING & TECHNOLOGY
KARACHI, PAKISTAN

GUIDELINES FOR SUBMISSION AND FORMAT FOR BE (CIVIL) PROJECTS

These guidelines shall be read in conjunction with "BE (CIVIL), Project monitoring, Management and Assessment"

2.1 GENERAL

a) Project shall normally be undertaken on a topic agreed upon by a member of faculty, who shall be act as supervisor(s) for that project group. The maximum number of students in a group shall be restricted to eight (8) and minimum number to three (3).

b) The commencement date of project shall start from the date of beginning of the session each year, and the completed project shall have to be submitted during the last teaching week of fall semester.

c) The project forms part of the overall assessment for the BE (CIVIL) examination, and is a requirement for partial fulfilment of the degree. The date of the presentation of the project for final assessment shall by the Chairman of the Department in consultation with the supervisor(s).

2.2 SUBMISSION

a) At the time of examination, the candidate(s) shall normally be required to submit two (2) bound copies of the project, conforming to 2(b) given under with no signatures.

b) The project report shall conform in layout, binding and presentation to the requirement set out below under "Format of project"

c) Once the examination has been completed it is the responsibility of the candidate(s) who has presented the project, to ensure that an addendum is pasted at the end incorporating all changes, corrections, omissions and errors as pointed out by the examiners, and the two (2) copies are bound in accordance with "Format of project" duly signed by supervisor(s) and Chairman of the department, with in a notified period. Non-compliance shall culminate in withholding of result. These two copies shall become the property of the department and shall be deposited in project library of the Department.

d) The final corrected hardbound copies of the project report must be accompanied by a CD containing the following:

i. MS Word form of the final corrected version of the report.
ii. Source files (e.g.: MS Excel sheets used in data analysis, data files etc)
iii. A README file (.Doc) describing the layout of the CD contents.
iv. Any other relevant files/documents.
v. The CD shall be placed in the pocket of the back cover.

2.3 FORMAT OF PROJECT

2.3.1 General

The provision of the general format shall be observed whenever appropriate, but may be modified on the advice of the candidate(s) supervisor, after consultation with Chairman.

2.3.1.1 Number of pages

The total number of pages composing figures, tables, plates, charts, graphs, and written material shall not exceed one hundred (100). Appendices may be added and in that case, the total number of pages shall not exceed two hundred (200)

2.3.1.2 Size of paper

The size of paper shall be international A4 (8.27”×11.69”). Paper shall be of good quality and of sufficient opacity for normal reading. One side only of the paper shall be used. These shall be no border or any other printed matter on the paper except text, figures etc., related to project.

2.3.2 Cover

1. **Binding**. The project shall be bound within boards in navy blue buckram. The binding shall be fixed kind in which leaves are permanently secured. Metallic corner protection should not be provided.
2. **Front cover**. The front cover shall contain the matter as given in the attached sample, page (6). The lettering shall be gold in at least (8 mm) type.

2.3.3 Typographical Details

1. **Layout**

Margins at the binding (left-hand) edge shall be 40 mm (1.5”) and other margins shall be 20 mm (0.75”) 1.5 spacing shall be used between the lines except heading of sections and

sub-section, which shall be of double spacing. Foot notes, quotations, references photographs and/or figure shall have single spacing

2. **Type setting**

Project shall be presented in a permanent and legible form in typescript. Typing should be of even quality, with clear black characters. Drawings should be in black ink. Copies produced by photographic or comparable permanent process are acceptable.

2.3.4 Pagination

1. **Page Numbering.** Pages shall be numbered consecutively throughout the project, including figures, plates, charts, graphs and appendices. Page number shall be in English numerals starting from chapter; all other pages before the start of the chapter, including inner cover shall be numbered in roman numerals (see sample pages 7-25)
2. **Position of page numbers.** Shall be located centrally at the bottom of the page approximately 10 mm (0.5") above the age

2.3.5 Preliminaries

1. **Title page** (inner cover). The title page shall conformed to the sample , page (7)
2. **Certificate.** The certificate shall follow the title page according to the sample page.
3. **Table of the contents.** Table of the content shall follow certificate according to the sample, page (9). All the other contents before start of the chapter shall be placed as given in "Table of the contents-sample". Sample for each is also attached for ready reference from page (13) thought page (19).
4. **Abstract.** There shall be an abstract, or summary of the project report of approximately 200 words. The abstract shall provide a synopsis of the project and shall state clearly the nature and scope of work under taken.

2.3.6 Text

1. **Introduction.** The first chapter of the project shall be "Introduction" defining the relation n of work done to the other work in the same field, need of the study, scope and objective, beneficiary and the methodology to accomplish the study.
2. **Chapters and Sections.** Project shall be divided as appropriate into chapters, section and sub section, the system of headings shall be consistent and should

provide a clear indication of the changes in content. The chapter, section and sub section shell be numbered, e.g., chapter 2 for chapters, 2.1 for sections and 2.1.1 for subsections the headings and spacing shell be as shown in sample, page (20).

3. **Reference citation, Figures, Plates etc.** Reference cited in the text should be identified by numbers type as super script, or if on the line, in brackets, immediately following relevant word or perhaps in the text. Tables, figures, plates, and the charts etc. should have captions. If these are borrowed from some reference then they should be cited in the round brackets following the caption e.g. (After Ref 1). All figures, plates, tables and charts should be well connected with the text, and should be placed after the relevant chapter in the order so that tables first, then figures and then plates. The number shall depict the chapter to which they blowing e.g. Fig 2.1 means first figure of chapter 2. Sample for each is attached herewith, pages 21, 22, 23.
4. **Equation Numbering.** Each equation shall be given a number. The number shall depict the chapter to which they belong e.g. first equation of chapter 2 shall be written as (2.1). Sample for an equation is attached here with, Page 25. The equation shall be cited as Eq. (2.1).
5. **Unbounded Material.** Each item unbounded material e.g. maps, blue print etc., shall be marked with project title and batch, and shall be placed in an additional pocket of the back cover.

1.2 End Matter

1. **References**. The list of references should be arranged in the order in which the references are identified in the projects. Every reference in the list should enable the reader to identify work cited as per sample, page (24) . The reference should be written in a consistent format taken from any reputed journal or ISO standards. For gaudiness purposes format of one the journal has been followed and is given in sample page (24)

e.g., For book 1, 2, & 3 are appropriate.

For journals 4, 5, 6, & 7 are appropriate

For conference, proceeding 8 is appropriate

For Thesis 9 appropriate

2. **Bibliography**. If a bibliography is supplied. It should be arranged in a logical order, for example alphabetically by authors in broad subject class.
3. **Appendices**. Appendices shall follow main text. Appendices many contest of supporting material or considerable length or of list or documents. All calculation for design project and working table for construction management project shall be placed in appendices. The main text shell only content summarized design table sample provided on page (25).

PERFORMANCE OF BLENDED CEMENTS IN AGGRESSIVE ENVIRONMENTS

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PERFORMANCE OF BLENDED CEMENTS IN AGGRESSIVE ENVIRONMENTS

BATCH 2007-2008

By

NAME	SEAT NO
1. MUHAMMAD ARSALAN ASHRAF	CE-071
2. SYED DANISH JAVED	CE-072
3. MUHAMMAD SHARIQ SIDDIQUI	CE-074
4. BILAL AHMED	CE-075
5. MUHAMMAD ALI BUKHARI	CE-077
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7. MUHAMMAD JUNAID KHAN	CE-307

DEPARTMENT OF CIVIL ENGINEERING

NED UNIVERSITY OF ENGINEERING AND TECHNOLOGY
KARACHI, PAKISTAN

CERTIFICATE

This is to certify that the following students of batch 2007-2008 have successfully completed the final year project in partial fulfilment of requirements for a Bachelor's Degree in Civil Engineering from NED University of Engineering and Technology, Karachi, Pakistan.

MUHAMMAD ARSALAN ASHRAF	CE-071
SYED DANISH JAVED	CE-072
MUHAMMAD SHARIQ SIDDIQUI	CE-074
BILAL AHMED	CE-075
MUHAMMAD ALI BUKHARI	CE-077
MUHAMMAD OMER ALI SIDDIQUI	CE-105
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NED University of Engineering &
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(External)

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NOTATIONS

Wg	Weight in grams
Wµg	Weight in micrograms
C	Calcium Oxide
S	Silica
A	Alumina
F	Iron Oxide
MH	Magnesium Hydroxide
CH	Calcium Hydroxide
MS	Magnesium Sulphate
CSH	Calcium Silicate Hydrate
CAH	Calcium Aluminate Hydrate
MSH	Magnesium Sulphate Hydrate
W/C	Water-Cement Ratio
TDS	Total Dissolved Solids
Mg/l	Milligram per litre

ACKNOWLEDGEMENT

First praise is to Allah, the Almighty, on whom ultimately we depend for sustenance and guidance. Acknowledgment is due to NED University of Engineering & Technology, Karachi for the support it has provided us for the completion of the project. We would like to thank everyone who had contributed to the successful completion of this project. We would like to express our gratitude to our project supervisor, _____for his advice, guidance and his enormous patience throughout the development of the work. We would like to thank our Co-supervisor, _____ for her constant attention and her valuable time.

In addition, we would also like to express our gratitude to our loving parents and friends who helped and given us the encouragement.

ABSTRACT

This project is focused on the performance of different cement types blended with fly ash, exposed to seawater and sulphate environments. Fly ash is a by-product obtained from the combustion of organic materials. It is a pozzolanic material that is very useful when used in combination with cement and helps increase its compressive strength. Fly ash is being used in concrete and it is important that it is observed for its potential as a binder for concrete. It is also important to observe its behaviour when it is placed in contact with seawater and sulphate environments and how they affect the blended cement.

Different percentages of fly ash were used for preparing cement specimens to observe their behaviour accordingly. The environments provided are focused on sulphate attacks on concrete from seawater and environments with varying percentages of magnesium sulphate. The strength and deterioration rate of the blended cements was observed and analysed.

On the basis of the experimental works carried out during the project a few observations made were that, blending of cement with fly ash results in a decrease in the compressive strength of concrete in the initial days, but after 28 days its compressive strength starts to increase. It is better to utilize blends of fly ash for OPC and SRC for seawater, which is the source of both sulphate attack and corrosion.

DEDICATION

The project is especially dedicated to our parents, our supervisor and co supervisor for helping us out during the completion of the entire project.

CHAPTER NO. 4

RESULTS AND DISCUSSIONS

This chapter discusses the compressive strength results of the cement mortar specimens prepared and placed in environments. The testing of the cubes of standard OPC and SRC cubes are done at the end of 28 days of curing. The cubes that are immersed in the aggressive environment are tested for their compressive strength after the completion of their 90 and 180 days exposure.

2.4 VISUAL INSPECTION

The specimens are rated on a six-point scale ranging from 0 to 5 with 0 indicating the least or no deterioration.[13] After their designated exposure period the cement mortar cubes are taken out of their respective solutions, these cubes are placed for visual inspection to monitor the deterioration caused by the aggressive events. The changes in samples are noted in the form of deterioration ratings based on the visual changes like chipped off edges and corners, cracking and other changes (swelling, shrinkage, expansion or compaction).

The deterioration is classified on a six-point scale ranging from 0 to 5. A rating of 0 indicates a no change in the sample and a rating of 5 indicates a complete failure. The deterioration is hence graded according to the mentioned ratings and results are tabulated. The images of the samples at 90 and 180 days after the placement in solutions are also provided.

The noted observations of the inspected samples are given in Table and can be viewed in figure.

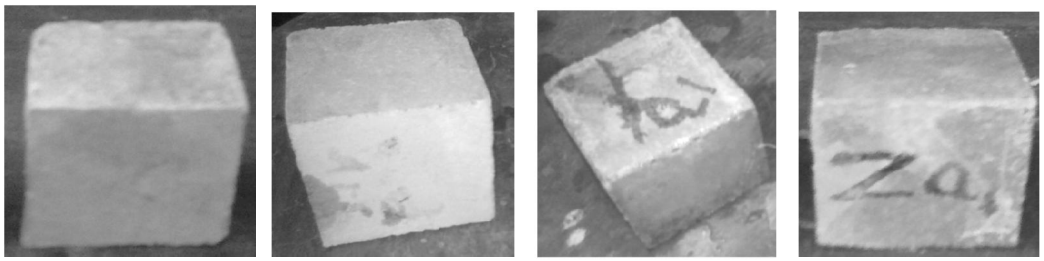
2.5 REDUCTION IN COMPRESSIVE STRENGTH

For the compressive strength test the mortars are tested at the end of 90 and 180 days of placement in solutions. The effect of sulphate attack is determined in the form percentage reduction of compressive strength in the mortar specimen as given in Eq. (4.1).

$$\% = \frac{-}{} \times 100 \qquad (4.1)$$

Table 4.1 Visual Inspection for OPC samples for 90 days curing

	OPC	OPC+ 10% FA	OPC + 20% FA	OPC + 30% FA
1% $MgSO_4$	0	0	0	0
2% $MgSO_4$	0	0	0	1
4% $MgSO_4$	1	1	1	0
Seawater	1	1	1	1



OPC OPC +10% FA OPC +20% FA OPC +30% FA

Figure 4.1 Cement mortar specimens exposed to 1% $MgSO_4$ for 90 days

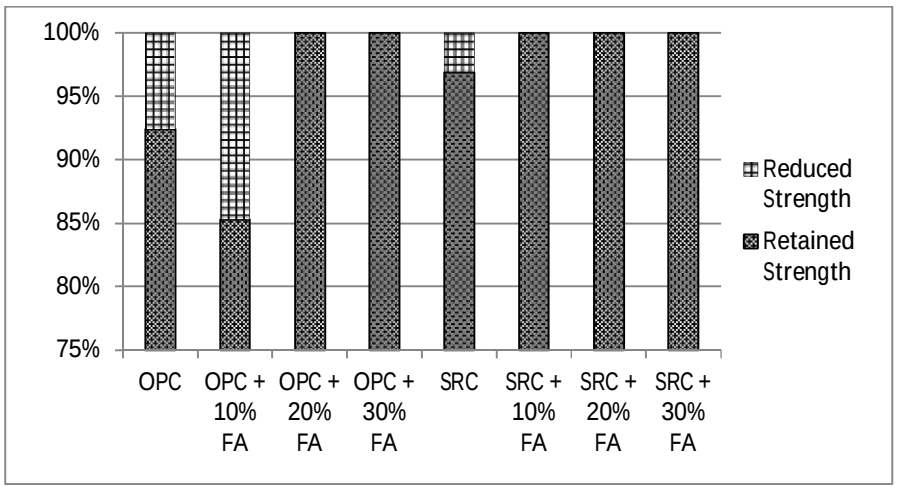


Figure 4.17 Percent compressive strength of cement types for 90 days in 1% $MgSO_4$

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