Empirical equation of moment and height for various type and shape of the building By Using ETABS

A project report is submitted to the department of civil engineering of **Sonargaon University** in partial fulfillment of the requirements for the degree of Bachelor of Science in Civil Engineering.

JANUARY, 2018

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DEDICATION

To Our Teacher Md. Rejaul Karim and Sonargaon University

LETTER OF TRANSMITTAL

January, 2018

To
Md. Rejaul Karim
Lecturer
Department of Civil Engineering
Sonargaon University (SU)
Dhaka, Bangladesh.

Subject: Submission of project report.

Sir,
We are hereby very pleased to submit the project report on **"Empirical equation of moment and height for various type and shape of the building By Using ETABS",** we developed a relationship between two axis. This report will give an advantage to find out Moment in respect to height and shape variations. It will help to engineers for building design. It has been great pleasure for us to work on such an important topic. The project work has been done according to the requirement of the Sonargaon University for the degree of B.Sc. in Civil Engineering.

We would be very happy to provide any assistance in interpreting any part of the paper whenever necessary.

Thanking you,
Sincerely yours

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DECLARATION

It is stated that the project work on **"Empirical equation of moment and height for various type and shape of the building By Using ETABS"** has been performed under the supervision of Md. Rejaul Karim, Lecturer, Department of Civil Engineering, Sonargaon University (SU), Dhaka. To the best of our knowledge and belief the project report contains on material previously published or written by another person except where due reference is made in the report itself.

We further undertake to indemnify the university against any loss or damage arising from breach of foregoing obligations.



SONARGAON UNIVERSITY (SU)

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CERTIFICATION

This is to certify that the project report on **"Empirical equation of moment and height for various type and shape of the building By Using ETABS"** is the confide record of project work done by **Md. Khairujjaman, Md. Belal Uddin, Md. Khalid Hassan** in the partial fulfillment of the requirements for the degree of B.Sc. in Civil Engineering from the Sonargaon University (SU).

This project work has been carried out under guidance and ii a record of successful work.

Supervisor,

Md. Rejaul Karim
Lecturer
Department of civil Engineering
Sonargaon University (SU)
Dhaka, Bangladesh.

ACKNOWLEDGEMENT

We would like to express our utmost gratitude to our supervisor **Assistant Coordinator and Lecturer, Md. Rejaul Karim** for all the help providing us to prepare the project report. His advice, research proficiency has made working on this project as an invaluable experience. He extended his helping hand by providing constant encouragement, inspiration, suggestions and facilities along with the constructive criticism in the form of valuable suggestion. It has been a pleasure working with him.

We Also Convey Our Gratitude to **Course Coordinator and Lecturer, Abul Hasnat** Department of Civil Engineering.

ABSTRACT

This project represents **"Empirical equation of moment and height for various type and shape of the building By Using ETABS"**, we developed a relationship between two axis-horizontal and vertical.

Where vertical axis always represents moment (max. value) of beam and horizontal axis represents the C_p value by changing number of grids when level of the building was fixed and changing level when grid was fixed.

Our main focus of this project to find out moment variations of beams for changing the building shape and its level. So, we chose a simple grid 16'x16' and fixed column size 20"x20". For designing building frame dead load, live load, floor finish, earthquake load, wind load and different load combinations by following code UBC-94.

Through this analysis it has been found that earthquake and wind loads have considerable effect on beam and column moments. It also observed that the moment variations follows a straight line.

Finally, we develop an empirical formula:

Y=mx+C

Where,
Y=Moment
m=Slope
x=C_p value
C= Constant value

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