

**“EXPERIMENTAL STUDY OF RC BEAMS
STRENGTHENED WITH CFRP FABRIC UNDER
PURE TORSION”**

**A DISSERTATION SUBMITTED TOWARDS PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE
DEGREE OF**

**MASTER OF ENGINEERING
IN
STRUCTURAL ENGINEERING**

**SUBMITTED BY
PARDEEP KUMAR**

(FT/ME(S)/07/2009)

ROLL NO. : 9077



DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING

DELHI COLLEGE OF ENGINEERING

UNIVERSITY OF DELHI

DELHI-110042

JUNE 2011

**“EXPERIMENTAL STUDY OF RC BEAMS
STRENGTHENED WITH CFRP FABRIC UNDER
PURE TORSION”**

**A DISSERTATION SUBMITTED TOWARDS PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE
DEGREE OF**

**MASTER OF ENGINEERING
IN
STRUCTURAL ENGINEERING**

**SUBMITTED BY
PARDEEP KUMAR**

(FT/ME(S)/07/2009)

ROLL NO. : 9077



**DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING
DELHI COLLEGE OF ENGINEERING
UNIVERSITY OF DELHI
DELHI-110042**

JUNE 2011

**“EXPERIMENTAL STUDY OF RC BEAMS
STRENGTHENED WITH CFRP FABRIC
UNDER PURE TORSION”**

**A DISSERTATION SUBMITTED TOWARDS PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE
AWARD OF THE DEGREE OF**

**MASTER OF ENGINEERING
IN
STRUCTURAL ENGINEERING**

Under The Guidance

**Mr. ALOK VERMA
(Associate Professor)**

Submitted By

**PARDEEP KUMAR
(FT/ME(S)/07/2009)**

Roll No. 9077



**DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING
DELHI COLLEGE OF ENGINEERING
UNIVERSITY OF DELHI
DELHI-110042**

JUNE 2011

CANDIDATE’S DECLARATION AND CERTIFICATE

This is to be declare that the thesis entitled “**Experimental Performance of RC Beams Strengthened with CFRP Fabric Under Pure Torsion**” is a bonafide record work done by me under the guidance of Shri Alok Verma, Associate Professor, Department of Civil & Environmental Engineering, Delhi College of Engineering, Delhi for the partial fulfilment of the requirements of the degree of Master of Engineering in Civil Engineering with specialisation in Structural Engineering from the University of Delhi, Delhi.

The matter embodied in this dissertation has not been submitted for the award of any other degree.

Date: -

PARDEEP KUMAR

Enrolment No. : - FT/ME(S)/07/2009

Roll No. : - 9077

To the best of my knowledge, the thesis has reached the requisite standard and the above statement made by Mr. Pardeep Kumar bearing Roll No. 9077 is correct.

Shri ALOK VERMA

(Associate Professor)

Delhi College of Engineering

ACKNOWLEDGEMENT

I wish to express my deep sense of gratitude and appreciation to Shri Alok Verma, Associate Professor, Department of Civil & Environmental Engineering, Delhi College of Engineering, Delhi for his guidance and invaluable advice throughout this project without which the completion of this project would have not been possible.

I express my sincere gratitude to all faculty members of Civil & Environmental Engineering and the people from library of Delhi College of Engineering, Delhi providing the relevant information when needed during the course of my project work.

I also express my sincere gratitude to Dr. S.K. Sharma, Principle Technical Officer, Central Road Research Institute, New Delhi to give valuable & inspiring guidance and excellent advice during the project.

I pay my sincere thanks to Dr. Suraj Prakash, Scientist, CRRI, New Delhi for providing the equipments for testing of specimens without which the completion of the projects would have not been possible and also thankful to Dr. Rajeev Goel, Scientist, CRRI, New Delhi for giving budgetary support and help in preparation of report.

I also express my sincere thanks to Mr. Rajveer Singh and Mr. Rajesh Rana for the constant help during casting and testing of specimens till the end of the project

I would like to give special thanks to Dr. Gopal Rai, Chief Executive Officer, R&M International, Mumbai for providing the CFRP Fabric and Adhesive for the work.

I also express my sincere thanks to Mr. Yogendra Singh, Mr. Surendra Kumar Verma, Mr. Shashi Kumar Bhushan, Mr. M.S.Rana, Mr. Sushil Kumar and Mr. Narendra Kumar providing help whenever required during the testing and preparation of report.

I pay my sincere thanks to Dr. P. Lakshmy, Scientist 'F' & HOD (BAS), CRRI for permitted me for doing the experimental work at Bridges and Structural Division and their constant generous help & cooperation throughout my project/thesis work.

I would like to sincere thanks to Mrs. Vikas Rani (wife), Nandita & Devvrat (children) and friends without their moral support, it would have been impossible to accomplish the job.

Pardeep Kumar