



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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MONA MAGHRABY



RELIABILITY ASSESSMENT OF STIRRUPS IN RESISTING PUNCHING SHEAR IN R.C. FLAT SLABS

By

AHMED RAAFAT GHANEM

A Thesis submitted to the
Faculty of engineering at Cairo University
In Partial Fulfilment of the
Requirements for the Degree of
MASTER OF SCIENCE

In

Structural Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Title of Thesis:

Reliability assessment of stirrups in resisting punching shear in R.C. flat slabs

Key Words:

Punching shear reinforcement, stirrups, yield strength, slab thickness, multiple leg stirrups

Summary:

Punching shear is one of the critical concerns in design of flat slab systems. The new Egyptian code ECP203-2018 allowed the use of shear reinforcement in resisting punching shear. This research is conducted to investigate the effect of different parameters regarding shear reinforcement on the punching capacity of flat slabs. These parameters include yield stress of stirrup, extension of stirrups from column face along slab span, slab thickness and the use of multiple leg stirrups against closed stirrups. The experimental program in this research includes testing 8 slab specimens with dimensions of (1200x1200) mm with thickness of 160mm and 200mm. The results of the experimental work were compared to provisions of ECP203-2018, ACI318-19, and EC2 codes. The results showed that increasing slab thickness from 160mm to 200mm increased the punching capacity by 20% for slabs without stirrups and 50 % for slabs with stirrups. Using closed stirrups increases punching shear strength of flat slabs as compared to multiple-leg stirrups.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

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Table of Contents

Disclaimer	i
Acknowledgments	ii
Table of Contents	iii
List of Tables	vi
List of Figures.....	vii
Abstract.....	ix
CHAPTER 1: INTRODUCTION.....	1
1.1 INTRODUCTION.....	1
1.2 OBJECTIVE OF RESEARCH	2
1.3 THESIS OUTLINE	3
CHAPTER 2: LITERATURE REVIEW	4
2.1 INTRODUCTION.....	4
2.2 OVERVIEW OF PREVIOUS RESEARCHES	4
2.3 RESEARCH PARAMETERS LIMITS IN DIFFERENT CODES	12
2.3.1 Euro code 2	12
2.3.2 ACI 318-19	14
2.3.3 ECP 203-2018.....	17
CHAPTER 3: EXPERIMENTAL PROGRAM.....	18
3.1 INTRODUCTION.....	18
3.2 TEST SPECIMENS	18
3.3 MATERIALS	24
3.3.1 Cement	24
3.3.2 Aggregate.....	24
3.3.3 Water.....	24
3.3.4 Concrete mixture design	24
3.3.5 Steel bars	25
3.4 FORMATION AND POURING OF SPECIMENS	25
3.5 MEASUREMENTS INSTRUMENTS	26
3.5.1 Strain gauges on steel bars	26
3.5.2 Displacements (LVDT).....	27

3.6 TEST SETUP	27
3.7 TEST PROCEDURE.....	27
CHAPTER 4: TEST RESULTS	29
4.1 INTRODUCTION.....	29
4.2 FAILURE AND CRACKING CHARACTERISTICS	29
4.2.1 Cracking of specimen (S1-1)	30
4.2.2 Cracking of specimen (S1-2)	31
4.2.3 Cracking of specimen (S1-3)	32
4.2.4 Cracking of specimen (S2-1)	33
4.3 LOAD-DEFLECTION BEHAVIOR	38
4.3.1 Deflection of specimen (S1-1)	38
4.3.2 Deflection of specimen (S1-2)	38
4.3.3 Deflection of specimen (S1-3):	39
4.3.4 Deflection of specimen (S2-1):	40
4.3.5 Deflection of specimen (S2-2):	40
4.3.6 Deflection of specimen (S2-3):	41
4.3.7 Deflection of specimen (S2-4):	41
4.3.8 Deflection of specimen (S2-5):	42
4.3 STRAIN OF FLEXURAL AND SHEAR REINFORCEMENTS	42
4.3.1 Strain behavior of S1-1:	42
4.3.2 Strain behavior of S1-2:	43
4.3.3 Strain behavior of S1-3:	44
4.3.4 Strain behavior of S2-1:	45
4.3.5 Strain behavior of S2-2:	46
4.3.6 Strain behavior of S2-3:	47
4.3.7 Strain behavior of S2-4:	48
4.3.8 Strain behavior of S2-5:	49
4.4 DUCTILITY	50
CHAPTER 5: ANALYSIS AND DISCUSSION OF RESULTS	52
5.1 INTRODUCTION:.....	52
5.2 EFFECT OF THE YIELD STRESS OF STIRRUPS ON PUNCHING BEHAVIOR ..	52
5.2.1 Deflection behavior of slabs	52
5.2.2 Shear reinforcement Strain.....	53

5.3	EFFECT OF SLAB THICKNESS ON PUNCHING BEHAVIOR.....	55
5.3.1	Deflection behavior of slabs	55
5.3.2	Shear reinforcement Strain.....	57
5.4	EFFECT OF EXTENDING THE STIRRUPS AWAY FROM THE COLUMN.....	58
5.4.1	Deflection behavior of slabs	58
5.4.2	Shear reinforcement strain	58
5.5	COMPARISON BETWEEN MULTIPLE-LEG STIRRUPS AND CLOSED STIRRUPS	59
5.5.1	Deflection behavior of slabs	59
5.5.2	Shear reinforcement strain	60
5.6	COMPARISON BETWEEN TEST RESULTS AND CODES OF PRACTICE	61
	CHAPTER 6: CONCLUSIONS & RECOMMENDATIONS	65
6.1	INTRODUCTION.....	65
6.2	CONCLUSIONS.....	65
6.3	RECOMMENDATIONS FOR FUTURE RESEARCH.....	66
	REFERENCES.....	67
	APPENDIX (A)	69
	Maximum capacity according to ECP [1]:.....	69
	Maximum capacity according to ACI [2]:	72
	Maximum capacity according to EC2 [3]:	75

List of Tables

Table 3.1: Details of specimens	18
Table 3.2: Component of the Concrete Mixture	24
Table 4.1: Results of Test Specimens	29
Table 4.2: Results of Ductility Index of the test slabs	50
Table 5.1: Comparison between ECP code [1] and Experimental results	61
Table 5.2: Comparison between ACI code [2] and Experimental results	62
Table 5.3: Comparison between Eurocode 2 [2] and Experimental results	63

List of Figures

Figure 1.1: Punching shear failure [9]	1
Figure 1.2: Multiple-leg stirrups	2
Figure 1.3: Closed stirrups.....	2
Figure 2.1: Rasha Mabrouk, et al [8] Typical specimens cross-section.....	4
Figure 2.2: Continuous hoop, Eom, et al. [9].....	5
Figure 2.3: Jae-Ick Jang, et al. [10] Typical specimens	6
Figure 2.4: Inclined stirrups cages, Carl Erik Broms [11]	7
Figure 2.5: Nuul system, Subedi and Beglin [12].....	7
Figure 2.6: Shear-bands, Nasr Z. Hassan, et al. [13]	8
Figure 2.7: Internal shear cracks, Philipp Schmidt, et al. [14].....	9
Figure 2.8: New type of shear reinforcement, Dominik Kueres, et al. [17].....	10
Figure 2.9: Steel fibers, K. Chanthabouala, et al. [18].....	11
Figure 2.10: Cross-shaped part, J. Valivonis, et al. [19].....	11
Figure 2.11: Euro code basic control perimeter [3]	13
Figure 2.12: EC2 outer perimeter [3].....	13
Figure 2.13: ACI critical sections for corner columns [2]	14
Figure 2.14: ACI critical sections for edge columns [2].....	15
Figure 2.15: ACI critical sections for interior columns [2].....	15
Figure 2.16: ACI stirrups arrangement [2].....	16
Figure 2.17: ACI types of punching shear stirrups [2].....	16
Figure 3.1: Reinforcement details of S1-2	19
Figure 3.2: Reinforcement details of S1-3	20
Figure 3.3: Reinforcement details of S2-2	21
Figure 3.4: Reinforcement details of S2-3.....	21
Figure 3.5: Reinforcement details of S2-4.....	22
Figure 3.6: Multiple-leg stirrups	23
Figure 3.7: Reinforcement details of S2-5.....	Error! Bookmark not defined.
Figure 3.8: Specimens casting	25
Figure 3.9: Strain gage on shear RFT	26
Figure 3.10: Measuring device (acquisition system)	27
Figure 3.11: Schematic view of test setup	28
Figure 3.12: Prepared specimen for testing	28
Figure 4.1: S1-1 Cracks at top surface.....	30
Figure 4.2: S1-1 Cracks at bottom surface.....	30
Figure 4.3: S1-2 Cracks at top surface.....	31
Figure 4.4: S1-2 Cracks at bottom surface.....	31
Figure 4.5: S1-3 Cracks at top surface.....	32
Figure 4.6: S1-3 Cracks at bottom surface.....	32

Figure 4.7: S2-1 Cracks at top surface.....	33
Figure 4.8: S2-1 Cracks at bottom surface.....	33
Figure 4.9: S2-2 Cracks at top surface.....	34
Figure 4.10: S2-2 Cracks at bottom surface.....	34
Figure 4.11: S2-3 Cracks at top surface.....	35
Figure 4.12: S2-3 Cracks at bottom surface.....	35
Figure 4.13: S2-4 Cracks at top surface.....	36
Figure 4.14: S2-4 Cracks at bottom surface.....	36
Figure 4.15: S2-5 Cracks at top surface.....	37
Figure 4.16: S2-5 Cracks at bottom surface.....	37
Figure 4.17: Deflection of slab S1-1.....	38
Figure 4.18: Deflection of slab S1-2.....	39
Figure 4.19: Deflection of slab S1-3.....	39
Figure 4.20: Deflection of slab S2-1.....	40
Figure 4.21: Deflection of slab S2-2.....	40
Figure 4.22: Deflection of slab S2-3.....	41
Figure 4.23: Deflection of slab S2-4.....	41
Figure 4.24: Deflection of slab S2-5.....	42
Figure 4.25: Flexural Strain of slab S1-1.....	43
Figure 4.26: Flexural Strain of slab S1-1.....	43
Figure 4.27: Shear Strain of slab S1-2.....	44
Figure 4.28: Flexural Strain of slab S1-3.....	44
Figure 4.29: Shear Strain of slab S1-3.....	45
Figure 4.30: Flexural Strain of slab S2-1.....	45
Figure 4.31: Flexural Strain of slab S2-2.....	46
Figure 4.32: Shear Strain of slab S2-2.....	46
Figure 4.33: Flexural Strain of slab S2-3.....	47
Figure 4.34: Shear Strain S2-3.....	47
Figure 4. 35: Flexural Strain of slab S2-4.....	48
Figure 4.36: Shear Strain of slab S2-4.....	48
Figure 4.37: Flexural Strain of slab S2-5.....	49
Figure 4.38: Shear Strain of slab S2-5.....	49
Figure 4. 39 DI calculation as per Feng et al [20].....	50
Figure 5.1: Effect of stirrups yield stress on deflection behavior ($t_s = 160$ mm).....	52
Figure 5.2: Effect of stirrups yield stress on deflection behavior ($t_s = 200$ mm).....	53
Figure 5.3: Effect of stirrups yield stress on strain in stirrups ($t_s = 160$ mm).....	54
Figure 5.4: Effect of stirrups yield stress on strain in stirrups ($t_s = 200$ mm).....	54
Figure 5.5: Effect of slab depth on deflection behavior (no shear reinforcement).....	56
Figure 5.6: Effect of slab depth on deflection behavior (stirrups $f_y=240$ MPa).....	56
Figure 5.7: Effect of slab depth on deflection behavior (stirrups $f_y=420$ MPa).....	56
Figure 5.8: Effect of slab depth on strain in stirrups (stirrups $f_y=240$ MPa).....	57
Figure 5.9: Effect of slab depth on strain in stirrups (stirrups $f_y=420$ MPa).....	57
Figure 5.10: Effect of stirrups extension on deflection behavior.....	58
Figure 5.11: Effect of stirrups extension on strain in stirrups.....	59