



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



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شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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التوثيق الإلكتروني والميكروفيلم

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Behavior of Double Layer Steel Roof Joints to Different Loads

A THESIS

Submitted in Partial Fulfillment for the Requirements of the Degree of
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(STRUCTURAL)**

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Bachelor of Science in Civil Engineering

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ABSTRACT

During the past decades, Space trusses have been used due their aesthetic appearance and capacity to cover large spans. There are types of steel space trusses such as double layer grid system, two parallel layers interconnected by vertical, horizontal, and diagonal members. Double layer grid system provides more rigidity and prevents the deflection of the structure. The jointing system is the main component in these structures. Many researchers are required to behavior of the joints in space trusses. The best way to cover this point is the parametric study on behavior of the joint in the double layer space trusses. There are different methods used in these decades the proposed method is not covered yet. The main purpose of this study is to propose a methodology that the behavior of double layer steel roof joints. The data used in this research was collected according to theoretical values, model geometry, and different loads. The models use the finite element method to give recommendations or guidelines to study the stability of behavior of double layer steel space truss joints. The Node and bolts have been modelled on SolidWorks and comparison between results of analytical model has been made by ANSYS and collector models are used to validate the proposed models. The joint has been analyzed to study the distribution of surface and internal stresses using Finite Element Method.

Keywords: *Space truss; Double layer grid system; Nodes; MERO system; Analytical Model; Finite Element Model; SolidWorks® ANSYS® Software.*

CONTENTS

CURRICULUM VITAE.....	III
ACKNOWLEDGMENT	I
ABSTRACT	II
CONTENTS	III
LIST OF FIGURES.....	VI
LIST OF TABLES.....	X
CHAPTER (1) – INTRODUCTION.....	1
1.1 OVERVIEW	1
1.2 PROBLEM STATEMENT	1
1.3 THESIS OBJECTIVE	2
1.4 RESEARCH CONTRIBUTION	2
1.5 RESEARCH METHODOLOGY.....	2
1.6 THESIS OUTLINE.....	3
CHAPTER (2) - LITERATURE REVIEW	5
2.1 INTRODUCTION.....	5
2.2 SPACE GRID STRUCTURES BACKGROUND.....	6
2.3 SYSTEMS OF SPACE STRUCTURES BACKGROUND.....	7
2.4 JOINTING SYSTEMS BACKGROUND	11
2.4.1 <i>Mero system</i>	11
2.4.2 <i>Disc Node</i>	12
2.4.3 <i>Bowl Node</i>	13
2.4.4 <i>Cylinder Node</i>	14
2.4.5 <i>Block Node</i>	14
2.4.6 <i>Space Deck System</i>	14
2.4.7 <i>Triodetic system</i>	15
2.4.8 <i>Unistrut system</i>	16
2.4.9 <i>Oktaplatte System</i>	17
2.4.10 <i>Unibat System</i>	18
2.4.11 <i>Nodus System</i>	19
2.4.12 <i>NS Space truss</i>	20

2.5 BEHAVIOR OF JOINTS USED IN SPACE GRID STRUCTURES UNDER ACTUAL CONDITIONS BACKGROUND	21
CHAPTER (3) – FORCES DISTRIBUTION IN DOUBLE-LAYER GRIDS	28
3.1 DESCRIPTION OF THE DOUBLE LAYER GRID.....	28
3.2 ANALYSIS OF THE DOUBLE LAYER GRID	29
3.2.1 <i>Space Truss Model 1:</i>	31
3.2.2 <i>Space Truss Model 2:</i>	32
3.2.3 <i>Space Truss Model 4:</i>	33
3.2.4 <i>Space Truss Model 6:</i>	34
CHAPTER (4) – VALIDATION OF ANSYS FINITE ELEMENT MODELLING	35
4.1 INTRODUCTION	35
4.2 THE VERIFICATIONS	35
4.2.1 <i>General</i>	35
4.2.2 <i>Verification with the Experimental Work</i>	36
4.3 FINITE ELEMENT MODELING	38
4.3.1 <i>Description of the THH connector</i>	38
4.3.2 <i>Description of Model</i>	39
4.3.3 <i>Results for Experimental Work Simulation</i>	41
CHAPTER (5) – PARAMETRIC STUDY AND ANALYTICAL MODELLING OF BOLTED SPHERICAL JOINT	44
5.1 INTRODUCTION.....	44
5.2 FINITE ELEMENT MODELLING	44
5.2.1 <i>ANSYS [43] Elements Used for The Models</i>	44
5.2.2 <i>Modelling Geometry</i>	46
5.2.3 <i>Material Properties</i>	48
5.2.4 <i>Loading and Setting of The Boundary Conditions</i>	48
5.3 VARIABLES OF THE PARAMETRIC STUDY	49
CHAPTER (6) – RESULTS AND DISCUSSION OF ANALYTICAL STUDY	53
6.1 GENERAL	53
6.2 RESULTS OF THE FINITE ELEMENT MODELING	53
6.2.2 <i>Stress Distribution of Bolted Spherical Joint</i>	53

6.2.3 Effect of increasing the diameter of the spherical joint on the internal stresses.....	76
6.2.4 Effect of increasing the Threading lengths on the stresses.....	77
CHAPTER (7) – CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE STUDIES .	79
7.1 INTRODUCTIONS	79
7.2 CONCLUSIONS	79
REFERENCES.....	82
شكر وتقدير.....	88

.....

LIST OF FIGURES

Figure 1 Full-Size Test Pyramidal Unit [3]	7
Figure 2 A view of the damaged roof covers induced by rainwater ponding [9].....	9
Figure 3 Welded node of space grid structure: 1) bottom chord; 2) diagonal rods; 3) steel plate [10]	10
Figure 4 Test set-up [11]	10
Figure 5 Collapse in connections [11]	10
Figure 6 A standard Mero connector [12]	12
Figure 7 Disc-Node connector [12]	13
Figure 8 Bowl-Node connector [12].....	13
Figure 9 Cylinder-Node connector [12]	14
Figure 10 Space Deck System [12]	15
Figure 11 Triodetic System [12]	16
Figure 12 Unistrut System [12]	17
Figure 13 Oktaplatte System [12]	18
Figure 14 Unibat System [12].....	19
Figure 15 Nodus System [12]	20
Figure 16 NS Space System [12].....	21
Figure 17 Basic elements used for various types of double-layer grids	28
Figure 18 Schematic view of members of a Mero type steel space roof structure	29
Figure 19 Schematic for double layer grid space frame	30
Figure 20 Space Truss Model 1	31
Figure 21 Space Truss Model 2	32
Figure 22 Space Truss Model 4	33
Figure 23 Space Truss Model 6	34
Figure 24 Plan and Isometric view of THH Connector [42].....	37
Figure 25 All octagonal faces and geometry of THH connector [42] 37	
Figure 26 Real Scale connector model preparation [42]	
(a) Mild steel cube with all side dimensions of 150mm.	
(b) The trimmed cube corners.	
(c) THH connector with inserted threaded bolts.	
(d) Strain gauges attached to the faces of THH connector.	38
Figure 27 Modeling of the THH connector	40

Figure 28 Mesh size considered for mesh sensitivity analysis	41
Figure 29 Loading of the specimen	42
Figure 30 Typical maximum principal stress value obtained from ANSYS	42
Figure 31 Geometry of SOLID187	45
Figure 32 Geometry of the CONTA174	45
Figure 33 Geometry of TARGET170	46
Figure 34 Modelling Geometry of the joint connector.....	47
Figure 35 Contact and Target surfaces of the bolt and joint connector	47
Figure 36 Material properties of the bolted spherical joint	48
Figure 37 Loadings of the connector	49
Figure 38 Angles between diagonal and chord members	51
Figure 39 Maximum principal stresses of the spherical joint 1	54
Figure 40 Internal stresses of the spherical joint 1.....	54
Figure 41 Maximum principal stresses of the spherical joint 2	54
Figure 42 Internal stresses of the spherical joint 2.....	55
Figure 43 Maximum principal stresses of the spherical joint 3	55
Figure 44 Internal stresses of the spherical joint 3.....	55
Figure 45 Maximum principal stresses of the spherical joint 4.....	56
Figure 46 Internal stresses of the spherical joint 4.....	56
Figure 47 Maximum principal stresses of the spherical joint 5	56
Figure 48 Internal stresses of the spherical joint 5.....	57
Figure 49 Maximum principal stresses of the spherical joint 6	57
Figure 50 Internal stresses of the spherical joint 6.....	57
Figure 51 Maximum principal stresses of the spherical joint 7	58
Figure 52 Internal stresses of the spherical joint 7.....	58
Figure 53 Maximum principal stresses of the spherical joint 8	58
Figure 54 Internal stresses of the spherical joint 8.....	59
Figure 55 Maximum principal stresses of the spherical joint 9	59
Figure 56 Internal stresses of the spherical joint 9.....	59
Figure 57 Maximum principal stresses of the spherical joint 10	60
Figure 58 Internal stresses of the spherical joint 10.....	60
Figure 59 Maximum principal stresses of the spherical joint 11	60
Figure 60 Internal stresses of the spherical joint 11.....	61
Figure 61 Maximum principal stresses of the spherical joint 12	61
Figure 62 Internal stresses of the spherical joint 12.....	61

Figure 63 Maximum principal stresses of the spherical joint 13	62
Figure 64 Internal stresses of the spherical joint 13	62
Figure 65 Maximum principal stresses of the spherical joint 14	62
Figure 66 Internal stresses of the spherical joint 14	63
Figure 67 Maximum principal stresses of the spherical joint 15	63
Figure 68 Internal stresses of the spherical joint 15	63
Figure 69 Maximum principal stresses of the spherical joint 16	64
Figure 70 Internal stresses of the spherical joint 16	64
Figure 71 Maximum principal stresses of the spherical joint 17	64
Figure 72 Internal stresses of the spherical joint 17	65
Figure 73 Maximum principal stresses of the spherical joint 18	65
Figure 74 Internal stresses of the spherical joint 18	65
Figure 75 Maximum principal stresses of the spherical joint 19	66
Figure 76 Internal stresses of the spherical joint 19	66
Figure 77 Maximum principal stresses of the spherical joint 20	66
Figure 78 Internal stresses of the spherical joint 20	67
Figure 79 Maximum principal stresses of the spherical joint 21	67
Figure 80 Internal stresses of the spherical joint 21	67
Figure 81 Maximum principal stresses of the spherical joint 22	68
Figure 82 Internal stresses of the spherical joint 22	68
Figure 83 Maximum principal stresses of the spherical joint 23	68
Figure 84 Internal stresses of the spherical joint 23	69
Figure 85 Maximum principal stresses of the spherical joint 24	69
Figure 86 Internal stresses of the spherical joint 24	69
Figure 87 Maximum principal stresses of the spherical joint 25	70
Figure 88 Internal stresses of the spherical joint 25	70
Figure 89 Maximum principal stresses of the spherical joint 26	70
Figure 90 Internal stresses of the spherical joint 26	71
Figure 91 Maximum principal stresses of the spherical joint 27	71
Figure 92 Internal stresses of the spherical joint 27	71
Figure 93 Maximum principal stresses of the spherical joint 28	72
Figure 94 Internal stresses of the spherical joint 28	72
Figure 95 Maximum principal stresses of the spherical joint 29	72
Figure 96 Internal stresses of the spherical joint 29	73
Figure 97 Maximum principal stresses of the spherical joint 30	73
Figure 98 Internal stresses of the spherical joint 30	73
Figure 99 Maximum principal stresses of the spherical joint 31	74