



IJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 8 Issue: II Month of publication: February 2020

DOI: <http://doi.org/10.22214/ijraset.2020.2075>

www.ijraset.com

Call:  08813907089

E-mail ID: ijraset@gmail.com

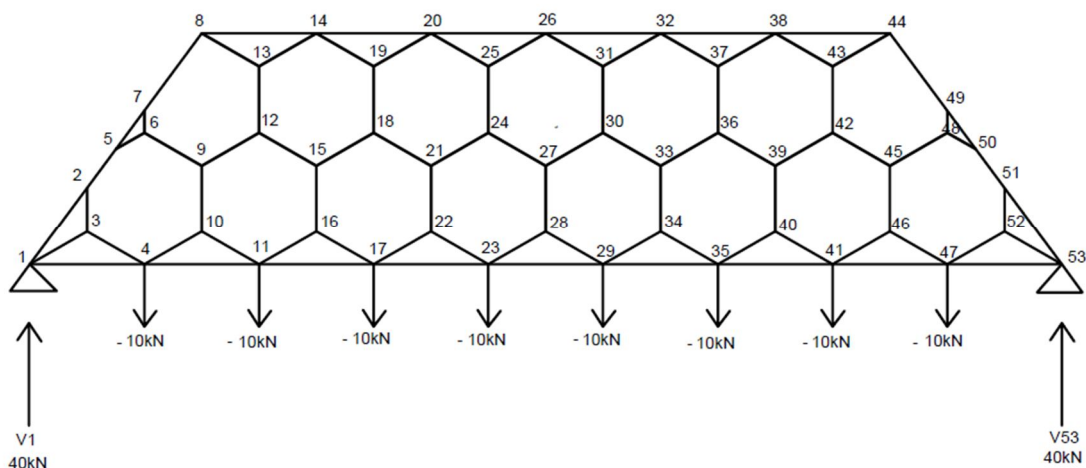


Fig 2: Truss members with load

Analyzing of perfect truss consists of finding the reactions at the support and finding the internal forces in the members of the truss.

A. Reactions of Supports

The reactions at the supports determine the load condition of the applied force and system of equilibrium by equilibrium equations. The equilibrium equations are a summation of horizontal and vertical forces are equal to zero.

$$\Sigma H = 0; \Sigma V = 0; \Sigma M = 0.$$

B. Internal Forces of Members

The internal forces in the members are determined by the joints of the truss is in equilibrium. The internal forces are found by the analytical or graphical method. In this project, the analytical method is used to find internal forces by the members. By using the analytical method, the calculation of internal forces is found by method of joints and method of sections. For this hexagonal structured steel frame, the method of joints is used to calculate internal forces of the members. The three dimensional hexagonal structured steel framed design is shown below.

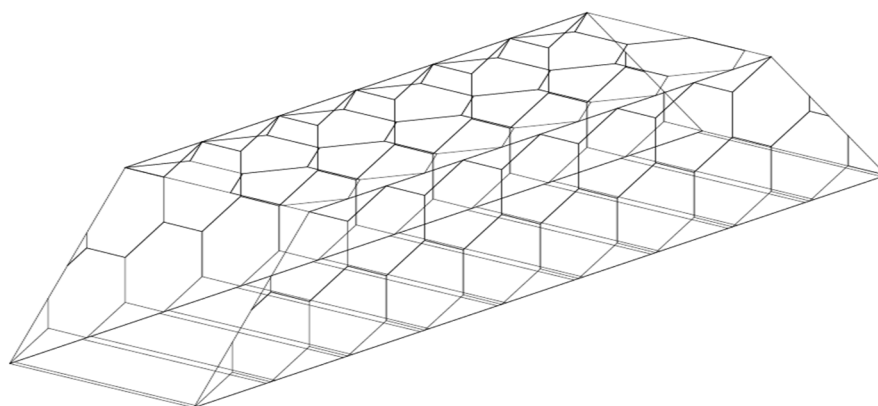


Fig 3: Three dimensional hexagonal structured frame.

III. CONCLUSION

The major purpose of this project is to understand the design principles underlying the creation of hexagonal structures for a wide range of practical applications. We can analyze and benefit through this highly efficient structural model in future. Collecting data, analyzing survey forms and tabulating data is used to apply statistical principles in calculating. An interesting future study might involve testing and analyzing the hexagonal structured design and stimulate the usage of ordinary designs.



REFERENCE

- [1] Abder rahmane Bentouhami, Boualem Keskes “Experimental Analysis And Modeling of The Buckling of a Loaded Honeycomb Sandwich Composite” Original scientific article, March 2014
- [2] Banoth Ganesh, B Vijay Kumar, D. Muppala “Design and Structural Analysis of Aircraft Floor Panel” International Journal of Advanced Engineering and Global Technology, Vol-03, Issue-12, December 2015
- [3] Ch. Naresh, A. Gopi Chand, K. Sunil Ratna Kumar, P.S.B.Chowdary “Numerical Investigation into Effect of Cell Shape on the Behavior of Honeycomb Sandwich Panel” International Journal of Innovative Research in Science, Engineering and Technology, Vol. 2, Issue 12, December 2013
- [4] K.Kantha Rao, K. Jayathirtha Rao A.G.Sarwade, M.Sarath Chandra “Strength Analysis on Honeycomb Sandwich Panels of different Materials” International Journal of Engineering Research and Applications, Vol. 2, Issue 3, May-Jun 2012
- [5] Komal A. Jangavali, D. P. Kamble “Finite Element Analysis and Experimental Evolution of Honeycomb Panel” International Journal of Science and Research, Volume 5 Issue 9, September 2016
- [6] Kranti S. Jadhav, S. R. Sandanshiv “Analysis of different Polygonal Cellular Structures under Impact Loading” International Journal of Science and Research, Volume 5 Issue 7, July 2016.
- [7] Mohiyuddin.C.S, Jayalakshmi Raju, Manjunath Hedge “A Study On Behaviour of Sandwich Panels under Impact Loads” International Journal of Civil Engineering, April 2015.
- [8] Yavuz Solmaz, Kadir Turan “Experimental and Numerical Analysis of Critical Buckling Load of Honeycomb Sandwich Panels” Journal of Composite Materials, Vol. 44, No. 24/2010.
- [9] Surya Satish Adapa, Janardhan Jaggavarapu and Vijaykumar Vedangi “Structural analysis of copper honeycomb structures” International journal of advances in engineering & technology, Vol. 8, Issue 6, pp. 950-957, Dec 2015.
- [10] S. S. Bhavikatti “Finite Element Analysis” second edition.
- [11] Xiaojun Yang, Qingshan Lan and Yuning Zhong “Buckling analysis and experiment of fiber-paper honeycomb sandwich structure composites” Advanced materials research, August 2011.



10.22214/IJRASET



45.98



IMPACT FACTOR:
7.129



IMPACT FACTOR:
7.429



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089  (24*7 Support on Whatsapp)