iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** III **Month of publication:** March 2023

DOI: https://doi.org/10.22214/ijraset.2023.49634

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue III Mar 2023- Available at www.ijraset.com

Literature Study on comparative Analysis of Long Span PEB Industrial Shed

Sharan. K[1], Prof. Dr. Eswaramoorthi. P[2], Assit. Prof. Mr. Nandhakumar. P[3]
[1]*M.E student, Department of Civil Engineering, Kumaraguru College of Technology,Coimbatore, India*
[2]*Professor, Department of Civil Engineering, Kumaraguru College of Technology,Coimbatore, India*
[3]*Assistant Professor, Department of Civil Engineering, Kumaraguru College of Technology,Coimbatore, India*

Abstract: ***The concept of Pre-engineered buildings involves steel buildings that are pre-designed and prefabricated. Recent advances in the construction field mainly focus on aesthetic appearance, quality, less time consumption and minimising the cost. Pre- engineered steel buildings are a recent innovation which implements steel structures that ensures economical integrity. This paper elaborates the PEB concepts that help in reducing the cost and time of construction. This technology helps in construction of sustainable structures with an increased durability when compared to standard steel structures which involves more time and cost. Pre-engineered steel buildings are eco-friendly, recyclable and reusable.***
Keywords: Pre engineering Buildings, Conventional steel buildings, Time and cost-efficient, Quick construction, Reusable.

I. INTRODUCTION

A steel building is a metal structure fabricated with steel for the internal support and for exterior cladding, as opposed to steel framed buildings which generally use other materials for floors, walls, and external envelope. One of the main reasons steel is used in so many construction projects is its durability—it has the highest strength-to-weight ratio of any other building material, making it ideal for buildings both large and small.

II. LITERATURE REVIEW

Shaik Kalesha, B.S.S. Ratnamala Reddy and Durga Chaitanya Kumar Jagarapu (2022) [1] In this paper, concluded that PEB stands top position when compared to all other technologies. Importance in time and money gained in construction sectors. The use of high-grade steel is economical and weight of the structure is reduced almost 50% or less then the steel used in conventional steel buildings. Cost saving is higher in PEB when compare to CSB, stell is eco-friendly and recyclable. PED can customize, functional versatility, strength and durability, low initial cost, superior quality, fast project construction, low maintenance and operating cost.

C. M. Meera (2013) [2] conveyed that PEB structures are easy to design according to country standards. PEB structures are most advantageous than CSB structures in terms of cost efficiency, quality, quick construction and simple erection.

Hemant Sharma (2017) [3] Designed both conventional and PEB building for a clear span of 20m with column in between, the result noticed that weight is reduced 27%-30% while using PEB structures compared to conventional structures. After detailed analysis PEB is 37% overall material saving and cost efficiency.

Mr. Vaibhav Thorat and Mr. Samyak Parekar (2022) [4] This paper results PEB structures are more economical, material saving easy to design and speedy construction. These structures are more reliable than CSB.

Sunil Kumar and G.B. Bhaskar (2019) [5] By increasing the area of Industrial building material and cost of the building is minimized in case of PEB structures while in case of Convention building the material and cost is not optimized if we increase the area of building.

Hemanthkumar.S.K and A.R.Pradeep (2020) [6] concluded that analysis are done as per IS codes, designed of different combinations and calculated the optimized sections.

Syed Firoz, Sarath Chandra Kumar B an S.Kanakambara Rao (2012) [7] concluded that PEB is low cost, strength, durability, design flexibility and recyclability. Basically, the material is easily installed and energy consumption. Steel material reflects the implement of sustainable development.

Gite Kalyani Dilip and M. P. Wagh (2021) [8] this paper effectively noticed PEB structures are easily designed by country standards. It is cost efficient, quality control, swiftness in construction and simple installation.

Subodh.S.Patil, Raviraj.V.Jadhav, Pritam.A.Mali, Mahesh.M.Bhanuse and Murgesh.R,Katti (2017) [9] discussed about material take off, design, foundation, erection and low cost. And concluded that design of PEB structures by simple method using IS codes. It tells us above benefits than other structures.

©IJRASET: All Rights are Reserved

Aakash Varma and Dr. Rajeev Chandak (2022) [10] concluded that PEB structures are cost efficient, eco-friendly, reusable and economical.

Shivani Meher, Ruchita Nar, Sadichha Jagadale, Gautami Kalal, Viren Chandanshive (2018) [11] study was completed in Mumbai region, based on the different types of truss member like truss, column, purlin, etc. the paper effectively conveys the industrial warehouse can easily designed by country standards.

Fermanto Lianto, Rudy Trisno, Sidhi Wiguna Teh (2018) [12] concluded that truss structure (especially joints and flexible joints in the truss) arrangement of linear rod in the balance of tensile and compressive forces, for a frame structure. Increasing of strength to carry the external loads and length to stretch, and increasing the stiffness, a space truss is combined into space frame structure system that is able to cover the large space and can avoid the column in middle**.**

III. CONCLUSION

Art of study said that PRE engineered building are easy to construct, time saving in construction, easy to design as per country standards, cost efficiency, easy to eruption, easily installed and energy consumption. Steel material reflects the implement of sustainable development. By increasing the area of Industrial building material and cost of the building is minimized in case of PEB while in case of Convention building the material and cost is not optimized if we increase the area of building.

REFERENCES

[1] An analytical study on pre engineered buildings using staad pro: (Shaik Kalesha[1], B.S.S. Ratnamala Reddy[2], Durga Chaitanya Kumar Jagarapu[3], Civil Engineering Department, K L Educational Foundation, Guntur 522502, Andhra Pradesh, India)

[2] PRE-ENGINEERED BUILDING DESIGN OF AN INDUSTRIAL WAREHOUSE: (C. M. Meera[1], M.E. Structural Engineering, Regional Centre of Anna University, Coimbatore, India)

[3] A Comparative Study on Analysis & Design of Pre-Engineered & Conventional Industrial Building: (Hemant Sharma[1], Assistant Professor, Department of Civil Engineering, K. J. Institute of Engineering & Technology, Savli, Vadodara Gujarat India)

[4] Pre Engineering Building as a Modern Era: A Review: (Mr. Vaibhav Thorat[1], Mr. Samyak Parekar[2], [1]Student M-tech Structural Engineering, Dept. of Civil Engineering G H Raisoni University Saikheda (MP), [2]Assistant Professor, Dept. of Civil Engineering G H Raisoni University Saikheda (M.P))

[5] Study and Analysis of Pre-Engineering Building Structure: (Sunil Kumar[1], Assit. Prof. G.B. Bhaskar[2], [1]M.Tech Student, Dept. of Civil Engineering, G.H. Raisoni Academy of Engg. & Tech, Nagpur, Maharashtra, India, [2]Assitant Professor, Dept. of Civil Engineering, G.H. Raisoni Academy of Engg. & Tech, Nagpur, Maharashtra, India)

[6] A Study on the Analysis and Design of the Steel Warehouse: (Hemanthkumar.S.K[1] , A.R.Pradeep[2]. [1]P.G. Scholar, Sri Siddhartha Academy of Higher Education, Tumakuru, 572107 India. [2] Assistant Professor, Dept. of Civil Engg., SSIT, Tumakuru – 572105)

[7] DESIGN CONCEPT OF PRE ENGINEERED BUILDING: (Syed Firoz[1], Sarath Chandra Kumar B[1], S.Kanakambara Rao[2]. [1](students, Department of Civil engineering, K L University, Vaddeswaram, A.P.-522502, India). [2](Assoc Professor, Department of Civil engineering, K L University, Vaddeswaram, A.P.-522502, India))

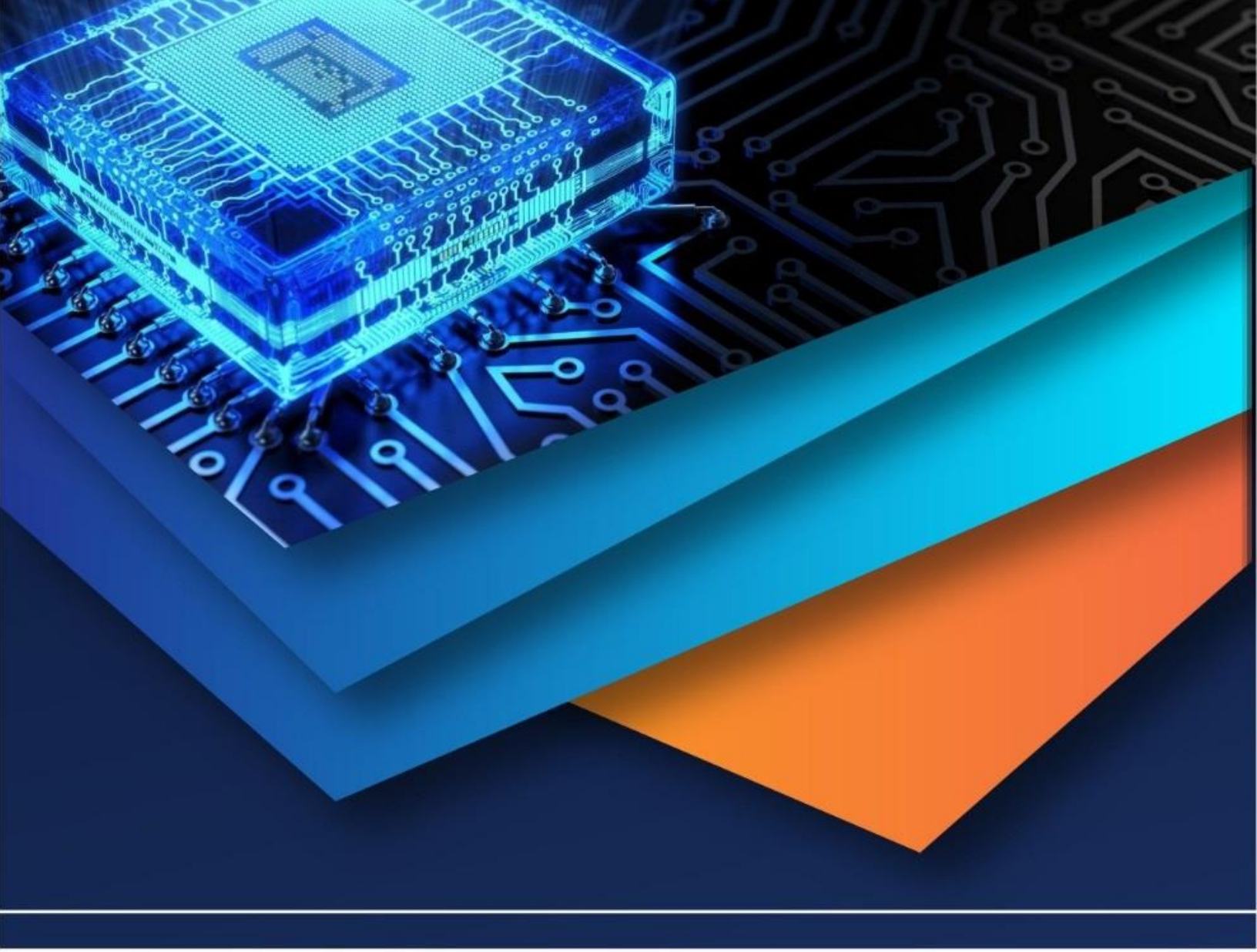
[8] Design and Analysis of PEB Warehouse Using Staad-Pro: (Gite Kalyani Dilip[1], M. P. Wagh[2] ([1],[2]Civil Engineering, Dr. Vithalerao Vikhe Patil College of Engineering, Ahmednagar))

[9] ANALYSIS AND DESIGN OF PRE-ENGINEERED BUILDING OF AN INDUSTRIAL WAREHOUSE: (Subodh.S.Patil[1], Raviraj.V.Jadhav[2], Pritam.A.Mali[3], Mahesh.M.Bhanuse[4], Murgesh.R,Katti[5]([1],[2],[3],[4],[5]Assistant Professor, Department of Civil Engineering, Annasaheb Dange College of Engineering &Technology,Ashta)

[10] Analysis and Design of Pre-Engineered Building with Different Parameters: (Aakash Varma[1], Dr. Rajeev Chandak[2]([1]ME Student, Department of Civil Engineering, Jabalpur Engineering College, Jabalpur (M.P.)[2]Head of Department, Department of Civil Engineering, Jabalpur Engineering College, Jabalpur (M.P.))

[11] Design of Industrial Warehouse: (Shivani Meher[1], Ruchita Nar[2], Sadichha Jagadale[3], Gautami Kalal[4], Asst. Prof. Viren Chandanshive[5], Department of Civil Engineering, Vidyavardhini's College of Engineering and Technology, Vasai, India)

[12] THE TRUSS STRUCTURE SYSTEM: (Fermanto Lianto[1], Rudy Trisno[2], Sidhi Wiguna Teh[3], Department of Architecture, Tarumanagara University, Jakarta 11440, Indonesia)



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)