To Study Modern Techniques In Real Estate And Mitigation Of Risk

Revati S. Patil[1](*PG Student),*

Department of Civil Engineering, D.Y Patil Institute of Engineering and Technology, Ambi, Pune SavitribaiPhule Pune University, (India).revati11patil@gmail.com

Hemant H. Salunkhe[2]

Professor, Department of Civil Engineering, D.Y Patil Institute of Engineering and Technology,Ambi, Pune SavitribaiPhule Pune University, (India).hemant.salunke@gmail.com

Abstract - *The world is in a crucial need of sustainable and a smart development as the problem of pollution and global warming is hastily increasing all over the world. That's why it is essential to use different green solutions to construction and modern methods of constructions. Also time is valuable and limited, that's the reason optimal utilization of time and money by using various modern techniques, technologiesand materials are vital in construction industry.*

Keywords: modern methods of construction MMC, intelligent techniques, risk mitigation.

I. Introduction

In the Real Estate business with companies vigorously competing for renters to occupy their buildings to withstand their revenue flow and exploit incomes the growth of new attractive modern buildings using inventive construction materials and techniques can provide a real market benefit. Therefore designers of buildings are under terrific pressure to decrease erection and manufacturing costs and to reflect sustainable materials that offer adequate thermal insulation properties, while still creating aesthetically attractive buildings. To achieve many new and inventive methods of construction are being accepted and the use of Modern Methods of Construction (MMC) is becoming progressively dominant. However, from a Risk Engineering and Insurance viewpoint the introduction of new materials and innovative construction techniques can makeinsecurity about the risk occur and the performance of these buildings in the longer-term.

II. Research Background

1. Poorang (Amir E.) Piroozfar (2013) has studied in this research paper that during practice and architectural theory in twentieth century the role of technology is major. The paper mainly deals with the comparison of construction of traditional ways of building in-site to the new method of production of manufacture of different parts of building off-site.

This paper gives information about industrialized building system: in this system volumetric system, planar system, linear system, combined systems are involved.

2. M. MotiarRahman (2014) investigated that the modern methods of construction (MMCs) gives many profits, but their acceptance is very low. The contribution of the MMC is low to the construction industry. That's why researcher study and also examinethe various barriers towider acceptances of modern methods of constructions. The results

are analysed by 160 questionnaire responses from china and U.K. the most important barrier for implementation if MMCs is cost related issues.

3. Albrecht Göhring elaborate that in 3-liter-house modernization of old building various natural resources are used. It increases the quality of life and standard of living is also raised. The implementation of 3-liter program is first of all done in Europe. The tenants are appointed in this modern house and observations are done. The main target of 3-liter is accomplished in this project. The oil consumption is decreases to 3 liter per square meter per year and 80% reduction in CO_2 emission.

4. Peter Steingass (2015) deals with using earth as a construction of building which is known as modern earth building. Discussion of new chances of earth building, technical development of earth building products and further steps for dissemination are elaborate in this paper. This technique is growing in all over Europe and main cause is increasing dissatisfaction of use of conventional method, ecological friendly construction, healthy living, protection against electromagnetic radiation etc.

5. Runming Yao, Baizhan Li, KoenSteemersa (2005) discussed that now a days in china the energy future and global environment is in trouble. China is words 2nd producer of carbon, behind America. For China's sustainable development energy policy plays most important role. The aim of this study is to supply a broad summary of energy potency problems within the designed setting in China.

 © 2018, IJREAM All Rights Reserved.

6.Emmanuel Ayala, JelisaKocurek(2011) done study on case study. Study of three story educational building with a total floor area of 78,000 square feet is explained in detail. Which consists of classrooms, computer and research laboratories, and faculty offices. The lighting system used is T8 fluorescent lights with manual switching system. The heating, ventilation and air conditioning (HVAC) system is equipped with four single duct variable air volume (VAV) air handling units (AHU). A series of test showed on the building reveals the huge energy savings through the use of energy efficient methods. These methods were identified and savings were restrained or appreciated for the electrical and HVAC systems. The predictable annual saving was calculated between $36,309 and $42,809. This paper presents the detailed methodology used in identifying these energy efficient methods.

7. FarzadNaeim, (2015) Advanced technologies in housing construction aren't used as oftentimes because the additional usual construction technologies that involve the employment of masonry, timber, and concrete. However, like unlike inventions, it's expected that over time these innovative technologies can gain broader approval. For purposes of the World Housing cyclopaedia, innovative technologies embody seismic isolation and passive-energy dissipation devices. The main application of innovative technologies in housing construction dates back to the Seventies.

III. Methodology

For this project workdata collection is done in questionnaire format which content total 23no of question which include process stages of construction work, description of risk, various modern methods of construction. In process stage planning, preconstruction work, construction work, costing of overall project, environment etc. all issues are included. As per this information which is collected from site is gathered and data analysis is done. Likert scaling technique is used for data analysis. After data analysis the risk involved during each construction phase is analyze by using factor analysis scaling technique and as per analysis conclusion of risk is computed.

IV. Objective

1. To study and check feasibility of modern techniques in real estate projects.

2. To investigate applicability and implementation of modern techniques in large real estate projects.

3. To find out risk mitigation action while application of various modern techniques for various stages of construction.

V. SCOPE

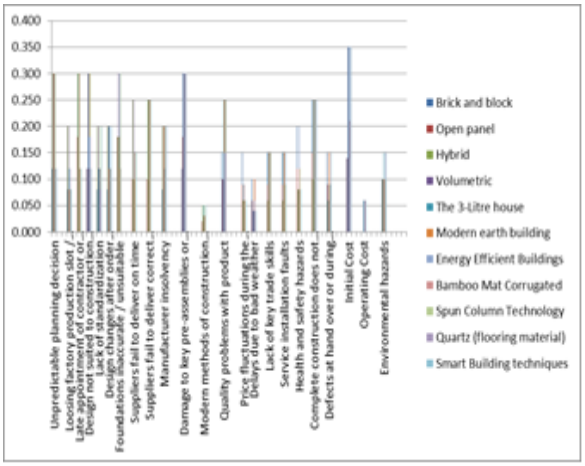
1. Study of modern techniques with its implementation.

2. To studying all these modern techniques and analysing we will get to know that, how to use these techniques and implement them in effective way.

3. The risk develop during implementation of modern techniques can be reduced by using other or new feasible methods of risk mitigation.

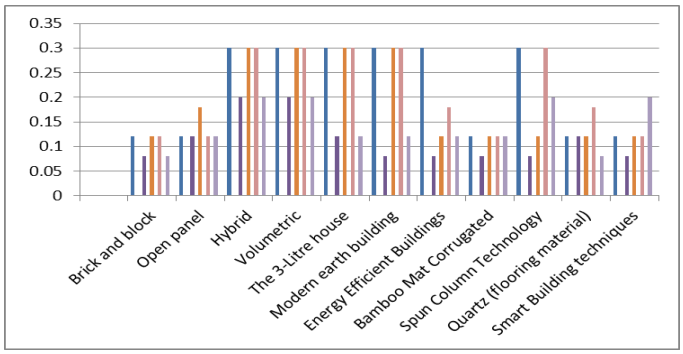
VI. RESULT ANALYSIS

Graphical Representation of Risk Involved During Construction Process

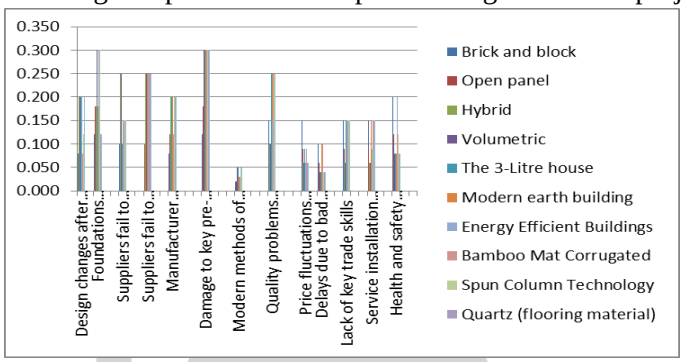


Graph 1. Detail study of risk occurrence during construction work of AFRA project

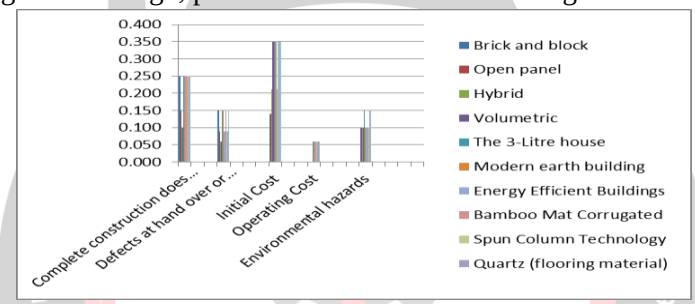
 © 2018, IJREAM All Rights Reserved.



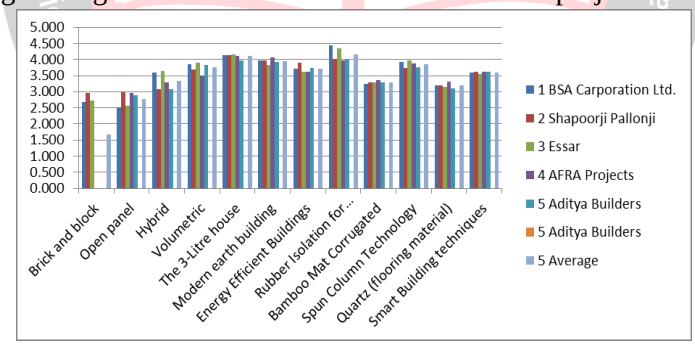
Graph 2.Risk involved during Planning and preconstruction process stage of AFRA project



Graph 3. Risk involved during Detail design, production and construction stage of AFRA project



Graph 4. Risk involved during costing and environmental hazards of AFRA project



Graph 5:Average value of risk involved during construction phase

VII. Conclusion

The new technology implementation is a very critical decision as it involves various factors. Most important factor is the cost. It's the driving factor for all. Second are the 'required labor' skills. Also the risk pertained are very high. The various risks are analyzed at various stages to study the implementation and following is the analysis outcome for various technologies:

3 Liter house

The overall Risk factor of this technique is more than 4. The reasons of having Risk Factor very high are Initial Capital cost, Pre-construction as well as during Construction cost. But apart from these many risks, this technology in cold and very drastically cold conditions as the energy efficiency induced after implementing this technology is very high.

Modern earth building

 © 2018, IJREAM All Rights Reserved.

The risk factor is on a higher side, i.e., ranging around 4.00. Risk factor is high as the Construction risks and improper project management risks are high. But on the other hand risks involved in operations, environmental risks, health and safety risks, market fluctuation risks are comparatively very low. This analysis leads us to the conclusion that in spite of high risk factor, this technology of modern earth building is highly effective in today's world of environmental and economic global crisis.

Energy Efficient Buildings

The risk factor is high, i.e., in the range of 4.00. Reasons for high risk factor are high project management risk, construction risk, Designing cost risk, Initial capital cost. But the technology is very low susceptible to pre-construction as well as environmental risks. And energy consumption of the building is also very low. That means for future benefits we can go for heavy investment costs and bare the risks of construction also.

Bamboo Mat Corrugated Sheets

The Risk factor technology comes under Medium range,i.e., 3.2.Risks involved in Construction phases and Quality risks are high but overall the rest of the risk factors are in the range of Medium or low category. Hence, we would suggest that implementation of this technology is Environment friendly.

Spun Column Technology

The Risk factor is on the higher side, i.e., in the rage of 3.8 to 4. The risk is high as in Project management risk, Pre-construction, Construction, and initial cost risks are high. But on the other hand the risk of delay due to prefabrication, and other risks which can occur while implementing cast-in-situ concrete technology are comparatively very low.

Lexan Solar Control Sheet

These panels prove to be the best for the situation where heat gain is required. As these are transparent panels they allows light to come inside and heat the building. Hence reduces load on building heating system.

Quartz (flooring material)

Risk factor for this Quartz flooring material lies between 3 to 3.2; this means the risk involvement while implementing this flooring material is of Medium category. All the risk parameters for this material are of Low or medium range except installation cost risk and manufacturing risk. It can prove to be a good aesthetic material with low initial capital investment.

Intelligent Systems

Choosing and stipulating the correct sensor requires integration accuracy, application, reliability, and costs. Upgrading the sensor is the first step in falling system imprecision's and improving the dependability of the system. A life-cycle-cost method is valuable when considering the relation merits of various sensors. Sensor technology continuously improving. The future will hold an increasing number of smart sensors accomplished of providing extremelyprecise digital signal straight to the BAS control network.

Brick & Block Technique

The Risk factor for implementing Brick & Block technique is low, i.e., 2.5 to 2.7. This Risk factor depends upon the low risk involvement for initial cost, operational cost, health and safety and design. The only factor which involves maximum risk is construction phase. This technique has considerable in-built value because of its low cost construction and environment friendliness.

REFERENCES

[1]. PoorangPiroozfar, "evolution of nontraditional method of construction: 21st century pragmatic view point" DOI: 10.1061/(ASCE)AE.1943-5568.0000078. © 2013 American society of civil engineers.
[2]. M. MotiarRahman, "Barriers of Implementing Modern Methods of Construction"2014 ASCE.
[3]. S. M. E. Sepasgozar, "Discussion of "Barriers of Implementing Modern Methods of Construction" by M. MotiarRahman DOI: 10.1061/(ASCE)ME.1943-5479.0000173
[4]. Albrecht GöhringDiplom, "THE 3-LITER-HOUSE AN INNOVATION IN THE MODERNIZATION OF OLD PROPERTIES" Ludwigshafen/Rhein, Germany
[5]. Peter Steingass, Berlin (Germany), "NEW CHANCES FOR MODERN EARTH BUILDING" 2015
[6]. Runmingyao, "energy policy and standard for built environment in china" science direct 2005
[7]. Keiichi ShimaYojiroUo - Internet Initiative Japan Inc., Chiyoda-ku, Tokyo 101-0051, Japan; Requirements for Quick Network Construction Mechanisms for the On-Site Emergency Rescue Activity.
[8]. Graham Sanderson, Approved by: Richard Hodkinson, October 2003; A strategic review of the use of modern methods of construction in new-build and refurbishment housing projects: Author: - Richard Hodkinson Consultancy.

 © 2018, IJREAM All Rights Reserved.