

Quality Control For Commercial Building Using 6D Model

Ujwala Bansode¹, Prof. R B Matkar²

¹Dept of Civil Engineering

²Assistant Professor, Dept of Civil Engineering

^{1, 2}Padmabhoosan Vasantdada Patil Institute of Technology Bavdhan, Pune, India

Abstract- *The potential of Building Information Modeling (BIM) to support a transformation of the processes of design and construction has been evident in the construction industry. Although BIM is considered helpful in improving design quality by eliminating conflicts and reducing rework, there has been little research into using BIM throughout the project for construction quality control and efficient information utilization. Due to the consistency of design data with quality data and construction process with quality control process, the potential of BIM implementation in quality management lies in its ability to present multi-dimensional data including design data and time sequence. This paper explores and discusses the advantages of 6D BIM for a quality application based on construction codes.*

Keywords- BIM, 6D, Revit

I. INTRODUCTION

In this part a few contextual analyses; worldwide diaries are concentrated to comprehend BIM innovation. Through writing overview it can be presumed that BIM innovation ought to be executed in development industry. The BIM innovation can defeat impediment of traditional CAD displaying.

Building Information Modelling (BIM) has turned into an outstanding built up broad communitarian process and a vital zone of improvement in the Architecture, Engineering and Construction (AEC) industry and has risen above all orders. The utilization of BIM in development activities can expand the data quality required for settling on basic outline choices to get to a building's ecological effect.

Building Information Modelling (BIM) is broadly observed as an impetus for advancement and profitability in the development business. BIM can help a more feasible development process that thusly may add to annihilating destitution in creating nations (United Nation Millennium Goals). While BIM is progressively being received in created nations, executions in the creating nation setting are uncommon.

BIM has been generally utilized as a part of business building development to not just for all intents and purposes assemble an office before its real physical development, yet in addition mimic and investigate potential effects (Smith 2007).

Building data demonstrating (BIM) and related issues has been a subject of extreme innovative work, as detailed in the on-going insightful writing. Enhancements in the effectiveness of the arranging and configuration forms, development arranging and control, plan development coordination, and offices administration have been dissected. Moreover, benefits got from BIM usage have been characterized in light of upgrades accomplished all through building-related procedures.

1.1 Aim Of The Present Work

To analyses BIM for Commercial building site

1.2 Objectives:

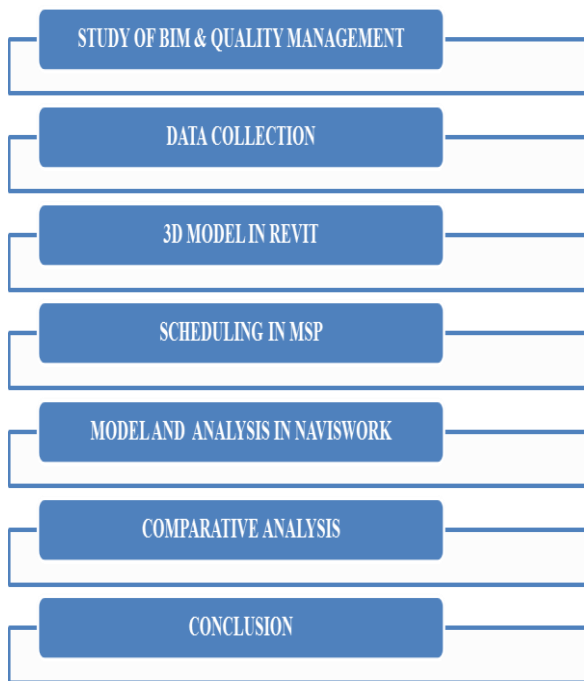
- To understand BIM flow process for effective coordination with contractors, structural consultant and architects.
- To prepare 6D model for G+6 commercial building model which include cost, quantity, schedule
- To check BIM process for quality management of construction industry .

II. LITERATURE REVIEW

Swapnesh.P.Raut In the 21st century, BIM has acquired a progressive idea the Architecture, Engineering and Construction (AEC) industry, which is permits developing building basically before it is based on development field. In this paper we centre the technique included directing conflict location examination utilizing building data displaying programming. Rula Ali Al-Damen This examination expected to look at the effect of TQM execution on hierarchical execution. The investigation was led in Jordan Petroleum Refinery Company (JPRC), the examination test measure was

(103) administrators from various levels. Past examinations have been fruitful in proposing another model to execute TQM through the accompanying advances: 1.) Commitment by Top Management 2.) Orientation 3. Yet, the TQM has arrived late to the development business as the development experts are uninformed of the TQM standards and systems. Li Ling The prerequisites of the advancement of pre-assembled development and in light of BIM (Building Information Modeling Chinese interpretation: building data display) innovation at present, examination and basic leadership, BIM innovation in gathering building plan, development, finishing acknowledgment and task and upkeep of the entire life cycle of use. Virtual development by BIM, check the plan strife, held outline issues installed profound pre-assembled structures, advance reproduction, continuous observing, foresee conceivable issues and create arrangements ahead of time, make great conditions for the control of the entire procedure . Definitions from both the development and quality sciences are looked into for propriety to the development office review. Learning about the genuine aftereffects of a quality administration framework is especially vital when new quality projects are being actualized.

III. METHODOLOGY



Building data appearing (BIM) and related issues has been a subject of certifiable creative work, as revealed in the advancing academic arrangement. Updates in the efficiency of the organizing and design structures, improvement orchestrating and control, plan advancement blend, and workplaces the boards have been poor down. Moreover,

benefits got from BIM execution have been depicted in context on redesigns accomplished all through structure related methods. It is exhaustively perceived by specialists and assert by earlier research that BIM and 4D approaches can give quicker and all the additionally persuading correspondence regarding data between charmed endeavor social events and yield improved and imaginative courses of action beginning from better arrangement, close by various points of interest. Building data showing (BIM) is a framework including the age and association of electronic portrayals of physical and rational attributes of spots. Building data models (BIMs) are documents (regularly yet not all around in restrictive arrangements and containing particular information) which can be secluded, traded or sorted out to help essential authority with respect to a structure or other developed asset. Stream BIM writing computer programs is used by individuals, associations and government workplaces who plan, structure, create, work and keep up grouped physical establishments, for instance, water, decrease, power, gas, correspondence utilities, avenues, ranges, ports, tunnels, etc

IV. PROBLEM STATEMENT

About 19 years ago, we set out on an endeavor to redefine the premium and luxury housing experience for Pune. With a drive to assemble and give ultramodern ventures to Pune, we concentrated on conveying living spaces that are at standard with forthcoming patterns and measures. While we were grinding away, we likewise continued formulating better approaches to coordinate a feeling of all encompassing network living among Pride Purple inhabitants. With a solid establishment in the realm of condos, line houses, cabins, business squares, assembly halls and lodgings, today, we are equal with extravagance and premium living. Pride Purple Square is a business improvement by Pride Purple Group. It is situated in Wakad, Pune. It offers roomy and aptitude completely structured Shops, Showrooms and Offices. The project is well equipped with all the amenities to facilitate the needs of the business owners.



Fig 1. 3D View Of Pride Purple Square

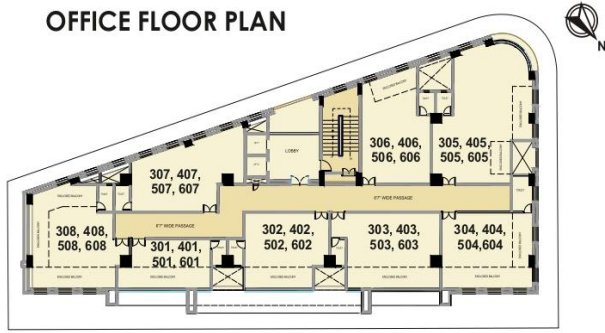


Fig 2 Floor plan

V. RESULT AND DISCUSSION

LOD 600 MODEL PREPARED IN REVIT SOFTWARE: Using Autodesk Revit software 3D model of building is prepared in LOD 300. Following are image of model, framing of model, development of model and final LOD 600 model. After 3D modelling proceed to scheduling in Microsoft Project software. And then 6D model in Autodesk Navisworks will work out.

5.1 Modeling In Revit

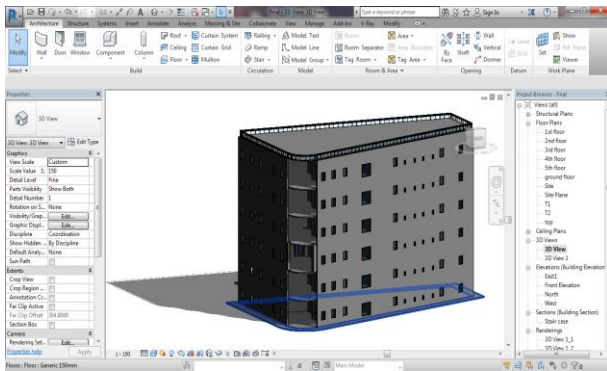


Fig 3 Modeling In Revit

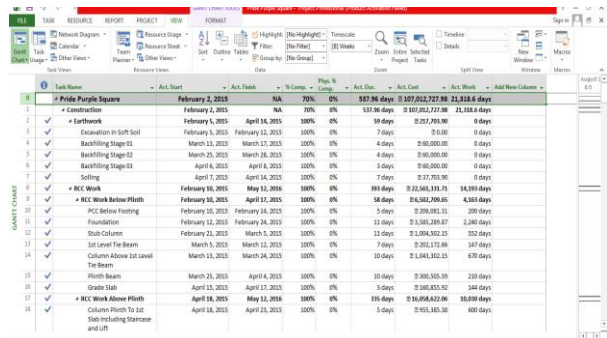
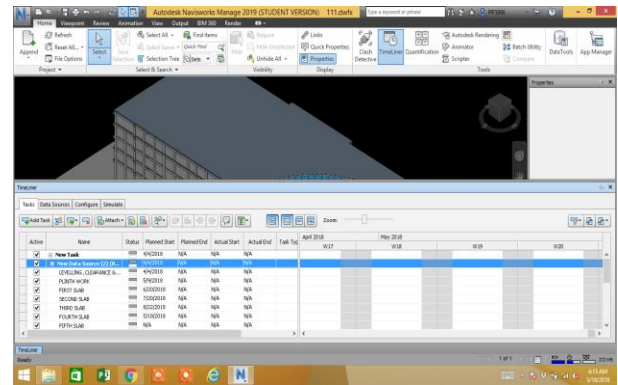


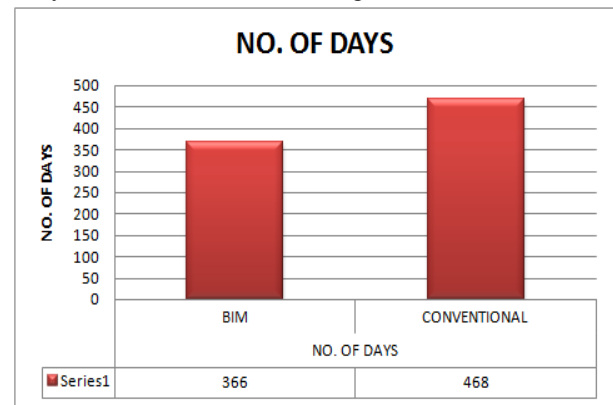
Fig4 Scheduling in MSP

3D model from Revit software and Schedule from MSP is imported to the Naviswork and 6D model is done in Navisworks. In this software simulation is workout



Lod 600 Model+ Scheduling

It is observed that by using BIM technology we can save total 102 days of construction of building.



VI. CONCLUSIONS

In this paper the BIM method is used for effective construction management, the quality management improvement is studied and it is observed that using clash detection effective coordination of various parties can be maintained. Furthermore the number of schedule days can be reduced to 25-30% by reduction in planning, analysis and design days. It is observed that by using BIM technology we can save total 190 days of construction of building. It is observed that by using BIM technology we can save total 26 lakh Rs of construction of building.

REFERENCES

- [1] 1 Mr. Swapnesh P. Raut. Raut. Raut. Raut. Raut' Improve the Productivity of Building Construction Project victimization Clash detection Application in Building data Modeling 2017 e-ISSN: 2395 -0056, p-ISSN: 2395-0072, Volume: 04 Issue: 03 | Mar -2017.
- [2] Dr. Rula Ali Al-Damen' The impact of Total Quality Management on structure performance Case of Jordan Oil

- rock oil Company' January 2017 Vol. 8, No. 1; January 2017
- [3] Tom Rajan, Anju Paul, IMPLEMENTATION OF TOTAL QUALITY MANAGEMENT (TQM) IN CONSTRUCTION-A REVIEW, Vol-3 Issue-2 2017 IJARIE-ISSN(O)-2395-4396
- [4] Li Ling' Application price Analysis of BIM in fictional Buildings'2017 ISSN: 2394-2630
- [5] Allan F. Samuels,' Construction Facilities Audit: Quality System-Performance Control'2017
- [6] P.M Diaz, "Analysis of advantages, blessings and Challenges of Building data Modeling in Construction Industry" twenty eight March 2016 Journal of Advances in engineering science, Vol. 2(2) 2016, pp. 1-11
- [7] Ahmed N. El Hawary, Ayman H. Nassar, " The impact Of Building data Modeling (BIM) On Construction Claims" twelve, Gregorian calendar month 2016 ISSN 2277-8616 VOLUME five, ISSUE 12,
- [8] Nam Buiab*, Christoph Merschbrockb, Bjørn Erik Munkvolda, " A review of Building data Modeling for construction in developing countries" twenty-eight Gregorian calendar month 2016: three hundred 2016, 25-28 June
- [9] Divya.R1 'Causes, Effects And diminution Of Delays In Construction Projects'2016 e-ISSN: 2395 -0056 Volume: 03 Issue: ten | Oct-2016 web.irjet.net p-ISSN: 2395-0072
- [10]Shrikant Bhuskade' Building data Modeling e-ISSN: 2395 -0056 p-ISSN: 2395-0072 Volume: 02 Issue: 02 | May-2015
- [11]Dermot Kehily' style Science: selecting AN applicable methodology for analysis in BIM' November twelfth - 13th 2015
- [12]report on smart city, Imran monkeypod (31st march 2015) Volume three Issue VI, Gregorian calendar month 2015 ISSN: 2321-9653
- [13]<https://m.yourstory.com/2015/03/smart-water-solutions/>
- [14]<https://m.yourstory.com/2015/04/water-energy-conservation-internet-of-things>
- [15]<https://smartcities.gov.in>
- [16] <http://smartcitieschallenge.in>
- [17] <http://www.autodesk.com/solutions/bim/overview>
- [18] <http://opendta.ounecorporation.org>