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CHANGE IN AESTHETICAL VIEW IN RESIDENTIAL BUILDING POST COVID 19 USING BIM

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Abstract: **When the World Health Organization (WHO) announced that the corona virus 2019 (COVID-19) as a pandemic issue, many countries have declared a complete national lockdown after a significant increase in COVID 19 cases. These decisions stopped the complete movement of people and results in a complete shutdown of many businesses all over the world. Due to this covid19 all the projects like infrastructure projects; residential building projects, etc. were postponed for longer time. This study carried for observing the effects of covid19 on our construction industry and the future of our construction industry.**

Keywords: *Pandemics, COVID-19, construction industry, BIM.*

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I INTRODUCTION

The appearance of Corona virus disease in 2019 was firstly reported in Wuhan city in China, which is caused by severe acute respiratory syndrome. The disease is infectious and has been spreading all over the world and considered by the World Health Organization (WHO) as a pandemic. This causes the economical breakdown of so many countries. There was no any sector which remains unaffected from covid19. It affects all the sectors in world adversely. Our construction industry is very different from other industries as it requires on-site involvement of all the junior engineers, senior engineers, project managers, workers, etc. So it is very crucial to admire that how the construction industry undergoes this pandemic situation. During this pandemic condition of covid19 our construction industry mainly affected by the lack of construction material supply, which gives bad impact on our construction industry. Job loses is also a major impact of covid19 pandemic condition which occurred. Worldwide millions of employees loosed their jobs in pandemic condition. In our construction industry many lose their jobs and many small contractors, enterprises shut down because they are not able to pay bills during lockdown. So it is very difficult to find out the impact of covid19 on our construction industry. Building Information Modeling (BIM) is observed as a catalyst for innovation and productivity in the construction industry.BIM provides a more sustainable construction process that contributes for developing countries fastly and more accurately while BIM is adopted in so many developing countries. So we are going to use BIM for our project.

II. LITERATURE REVIEW

1. The Impact of Pandemic Crisis on the Survival of Construction Industry: A Case of COVID-19.

BY: Yaser Gamil & Abdulsalam Alhagar.

This paper investigates the effects of pandemic condition of covid-19 over the construction industry and other all sectors. It is proved that the adverse effect of pandemic is suspension of projects, labor impact, job losses, cost overturn and financial problems. From different interviews it's observed that economic problem is major impact of pandemic condition of covid- 19 on our construction industry.

2.The Impact of COVID-19 Pandemic on Jordanian Civil Engineers and Construction Industry.

BY: Dr. Khair Al-Deen Bsisu.

This paper gives information that 150 engineers been enrolled in one study program of which 85 engineers working in office job, while remaining 65 engineers working on site. Out of 150 engineers, 144 affected by pandemic condition of covid-19 and lose their job. Most of engineers does not note any change in their productivity. On other side some engineers increased their productivity. Some believed that the working at home would substitute the office work.

3.The Impact of COVID-19 on Public Space: A Review of the Emerging Questions.

BY: Jordi Honey-Rosés & Isabelle Anguelovski

In this paper revived that how our current pandemic condition of covid-19 affects the public space design, perceptions, use and management these days. This impact is different for all cities. We observed that this is time to identify the uncertainties and the range of outcomes. It becomes very difficult to say that this crisis is an opportunity and never before this, such attention given to cities and health, making this an opportunity to examine the links between the urban planning, public spaces, etc.

4.Impact of Covid-19 Pandemic on Future Architecture Scenario.

BY: Durga Shanbhag & Prof. Manorama Patil.

In this paper research shows that there are numbers of adverse effects of pandemic condition of covid-19 situation in the world and precautions are being implemented an all the sectors. Future approach towards the changing lifestyle is looking forward. It is concluded that the change will certainly make these things better and it will help us to become ready for upcoming unknown challenges and hurdles.

III METHODOLOGY

Building Information Modeling (BIM) is an intelligent 3D model-based process that gives architecture, engineering, and construction (AEC) professionals the insight and tools to more efficiently plan, design, construct, and manage buildings and infrastructure.

1.BIM ARCHITECTURAL

BIM Architecture helps you understand and visualize architectural designs, walkthrough of projects in preconstruction, cost optimization in designing etc.

2.BIM STRUCTURAL

Visualize and understand concrete and steel structures, deriving accurate quantity takeoff, bringing values to the concrete models. Structural analysis, load calculation, modeling and documentation skills are required in global market as it has various benefits such as cost optimization.

3.BIM MEP(MECHANICAL/ELECTRICAL/PLUMBING)

MEP services are the veins for buildings. It can be further used for clash coordination, clash resolution, quantity take off and detailing.

4.PROJECT MANAGEMENT

MS-project which helps to manage project according to timelines and available resources. Project scheduling, monitoring on MS-projects helps in integrating activities with model elements to achieve data rich 4D Model.

5.4D BIM (LOD 400)

We can create data-rich 4D models through 4D scheduling& model integration that enables designers, builders, owners to visualize the entire life-cycle and progress of the construction activities with respect to time.

6.5D BIM (LOD 500)

5D analysis brings detailed cost information to the project. In order to predict ROI (return on investment) point we will need detailed cost information (construction cost – equipment cost, labor cost, material cost, etc.). A 5D analysis will also upgrade BoQ (Bill of quantity) and BoM (Bill of materials) documents.

7.AR (AUGMENT REALITY)& VR (VIRTUAL REALITY)

The advantages of bringing augmented reality into BIM are many. BIM with AR benefits the design, construction, inspections, operations and maintenance, and renovations phases of a construction project the maximum.

Designing Construction Inspections

Operation & Maintenance Renovation

8.BIM 360 COLLABORATION

Is a cloud-based Lean Construction production planning product that connects the entire project team. A project admin can set permissions and invite project team members. As a cloud service, BIM 360 Plan enables everyone working on a project to access and update schedules from anywhere. All of the BIM 360 products are used for collaboration on construction projects using the building information modeling (BIM) process. Collaboration involves organizations working together to resolve issues and deliver successful projects. The collaborative process leads to a better end product, with less effort and money spent on avoiding risk. It also brings teams closer to completing a project that's on time and within budget.

IV . RESULTS

1.COST AND TIME SAVINGS:

Project owners have always needed to see and share the context of their planned changes with authorities and stakeholders to get their approval and buy-in on project objectives.

2.ENHANCED PROJECT EXECUTION:

The added benefits of a collaborative model, delivered down to the individual worker, are significant in many areas, but one of the most important is improved safety.

3.VALUE CREATION BEYOND DESIGN AND CONSTRUCTION:

Modeling dimensions have quickly progressed beyond simply three dimensions to include elements of construction scheduling (4D), cost (5D), sustainability (6D) and operations

(7D). These added dimensions use the 3D model as the base, relying on its accuracy and completeness to extend the model with added predictive analytics to simulate all project phases.

4.ADVANCING BENEFITS:

The motivation for BIM is all about the bottom line. It's not enough to achieve improvements on the quality of work. There needs to be a compelling cost savings as well, otherwise the advantage won't be enough to change entrenched practices.

There are gains in efficiency to be had by doubling up processes that used to be more painstaking and manual, but with the latest technology are quicker and cheaper

V .CONCLUSION

The results from the survey show that an overwhelming majority believes that BIM is all about real time collaboration. The collaboration is not limited to architects, engineers, and contractors as it should also involve manufacturers and the end users be it operations and maintenance or an analysis to calculate the life cycle cost of a building. BIM is not only about software as it is a tool to help link specifications to a digital model that was once unimaginable.

The lack of adoption of BIM in its current state is due to lack of exposure, lack of training, lack of standardized tools and protocols, lack of relevancy, and cost. The poll suggests that many people are ready to use BIM to collaborate and believe no project is too small to use BIM. There is already collaboration among those within an organization as well as collaboration with across multiple organizations. The results are clear that the industry is ready to adopt BIM and see plenty of benefits from using the technology.

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