The future of resilient construction – Building Information Modeling

Introduction

The world of construction and infrastructure has its advantages and disadvantages. One of the most critical aspects in construction engineering is the presence of the word or phenomenon called “disaster”.

Through modernized tools and processes like Building Information Modeling (BIM) and autonomous technology or automation, disaster risks can be mitigated substantially.

3D modeling has changed the world of construction wherein it serves as a catalyst to save cost & time. These new improvements have changed the way AEC professionals design, analyze, and build projects.

The current plot

Looking at the current population scenario, it is important to reflect technological advancements from the AEC fraternity, and provide a means to help the current population through sensitive conditions.

The word “disaster” carries a myriad of meanings, which could range from human errors in building infrastructure, usage of low-quality materials, lack of skill, or natural disasters.

The lack of knowledge in people that move from a rural setup to an urban one creates inferior or substandard construction that lacks optimum structural components to withstand disasters.

Understanding the word “resilience” comes from an understanding that talks about the capacity of a person, system, or thing to recover with flexibility. It is important to understand that resilient construction is not the same as sustainable construction.

New technological tools and processes use resilient tools and technology to design buildings, communities, or landscapes that respond extremely well to any kind of construction disaster.

Moving from a traditional workflow to a BIM or automated workflow has contributed to the resilience factor. A legacy or traditional retrofit comprises of processes that include limited scalability in terms of –

Data Compilation

Architects, engineers, and various AEC professionals are included in this process wherein a survey records all the measurements of building elements viz. floors, walls, doors, etc. This is the first data stack; the second data stack is collected and analyzed for seismic parameters.

Data Conversion

Vulnerability judgment – Data in terms of vulnerability includes seismic processes like earthquakes, floods, etc.
Structural study – In order to come up with a seismic calculation, structural engineers take into consideration the exact structural configuration of the building or project.

Retrofit outline –As a conclusion of the vulnerability assessment, the architects and engineers come up with a proposal that includes building elements like beams, column, etc. This structural analysis ensures the building is resilient during a natural disaster.

3. Documentation

This process includes the process of creating high-quality documents or document stacks that include crucial information like –

▪ Existing building plans

▪ Study of structural analysis

▪ Retrofit information

▪ Building details

▪ Cost estimation or BOQ

Contact Us: - +91 73502 55855

Visit us: - https://nibt.education/