

A SPECIFICATION OF BUILDING SERVICE ENGINEERING MANAGEMENT WITH UNDERSTANDING BIM SOFTWARE AND REPRESENTATION OF IT BY MINIATURE MODEL

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ABSTRACT

In general, buildings provide living space, privacy, security, shelter from the elements, a place to keep possessions, and a comfortable place to work and reside. The mechanisms put in place in buildings to make them safe, comfortable, useful, and efficient are known as building services. They may cover things like lighting, plumbing, fire safety, HVAC (heating, ventilation, and air conditioning), ICT (information and communications technology), and more. Construction-related Services Engineers are the people who make this happen. The knowledge of building services is necessary to maintain the functional requirements of the building by a civil technologists.

I. INTRODUCTION

As buildings are becoming more complex and more modern, it is essential to include the same in the Civil Engineering curriculum. This course is designed to enhance the employability with the skills required for building service industries Plan, design, construct, and manage buildings more effectively by utilizing an intelligent 3D model-based design approach. It is possible to embrace more iteration at the design stage. Teams are no longer obliged to waste time cross-checking files and documentation and are free to work more cooperatively. Experts can contribute to a project's various aspects with greater ease. The time required to create a plan is shortened. Workflows will result in fewer mistakes and less supervision. Students can learn quantitative skills like graphing, graphical analysis, and visualization, statistics, computational abilities, mathematics, etc. with the aid of model construction. uses visual aids to teach concepts, make connections between ideas, and encourage critical thinking in students

II. OBJECTIVE

1. To study and specify building services engineering management.
2. To understand the role and importance of BIM software in building construction, services and maintenance.
3. To represent collected information regarding building services engineering management and BIM software by a miniature model.

III. BUILDING SERVICES

The knowledge of building services is necessary to maintain the functional requirements of the building by a civil technologists. As buildings are becoming more complex and more modern, it is essential to include the same in the Civil Engineering curriculum. This course is designed to enhance the employability with the skills required for building service industries

- **Lift:**



Fig.1: Lift

Lifts can be essential for providing vertical circulation, particularly in tall buildings, and for the vertical transportation of goods.

- **Escalator:**



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Fig.2: Escalator

Escalators are mechanical devices used for transporting people vertically between different levels of buildings.

- **Ramp:**



Fig.3: Ramp

Ramp is the first finance automation platform designed to save you time and money.

- **Detector**



Fig.4: Detector

Smoke detectors in large commercial and industrial buildings are usually connected to a central fire alarm system.

- **Fire sprinkler**

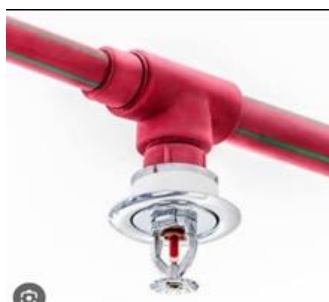


Fig.5: Fire sprinkler

buildings completely protected by fire sprinkler systems, if a fire did initiate, it was controlled by the fire sprinklers alone in 96% of these cases.

- **Fire extinguisher**



Fig.6: Fire extinguisher

A fire extinguisher is a handheld active fire protection device usually filled with a dry or wet chemical used to extinguish or control small fires, often in emergencies

- **Water supply and sanitation services**

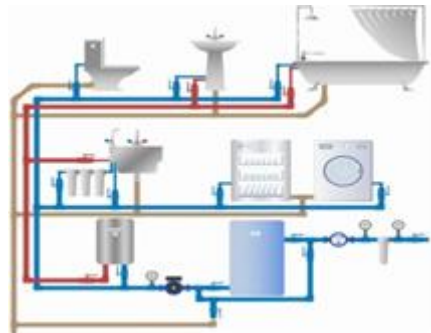


Fig.7: Water supply and sanitation

Water supply in the context of this chapter includes the supply of water for domestic purposes, excluding provision for irrigation or livestock

- **Natural resources conservation services**



Fig.8: Rainwater harvesting

The protection, preservation, management, or restoration of natural environments and the ecological communities that inhabit them.

▪ **Lighting, Ventilation, and Acoustics**

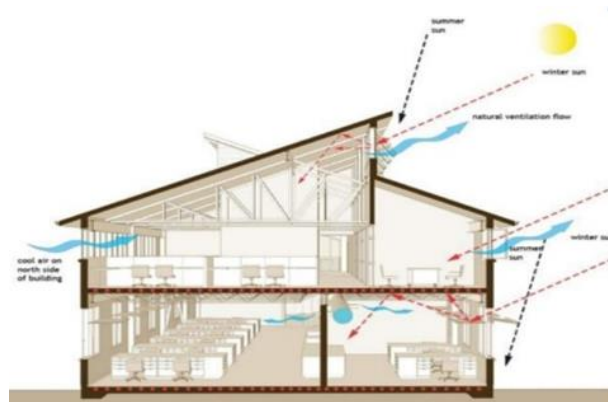


Fig.9: Lightning, Ventilation and Acoustic

Light and ventilation are two important aspects that one must consider before designing a house as they are essential for a healthy working environment

BIM SOFTWARE (REVIT)



Fig.10: Revit

Revit is a design and documentation platform that supports the design, drawings, and schedules required for building information modeling (BIM). BIM delivers information about project design, scope, quantities, and phases when you need it.

Procedure of model making

1. First we draw plan.
2. After drawing plan, we made front view of a building.



Fig.11: Front view of building

1. Then we print front view of a building on foam sheet.
2. After print front view we cut the door and window in specific size.



Fig.12: Cutting of window and door

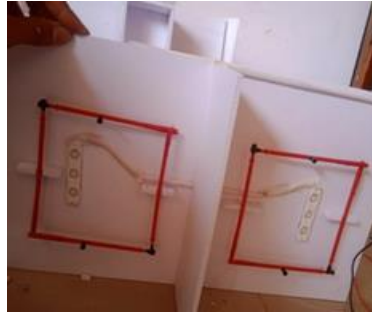


Fig.13: Fire safety

Then we show all services in slab, such as Fire safety, lightning



Fig.14: Partition in building

After showing all services we made partition in all rooms of building.

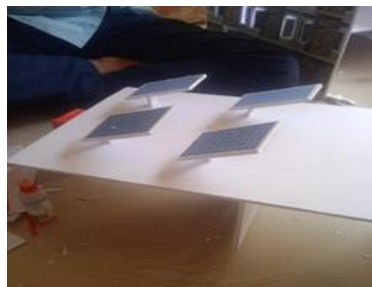


Fig.15: Solar panels

We made solar panels



Fig.16: Staircase & lift

Then we made lift. & staircase



Fig.17: Final model front view

Benefits of building services

1. Building services it has a real impact on people's lives.
2. Autodesk Revit software is a powerful visualization tool for 3D model visualisation.
3. It allows the creation of alternative MEP components using parametric modelling tool.
4. Revit enhance collaboration.

Limitations

1. Difficult to operating.
2. In building lift are not working without electricity.

IV. CONCLUSION

In building any system or equipment within it that makes that space comfortable and safe. Building services help create spaces in which people can live and work while having the least impact on the environment as possible. Building services are the systems installed in buildings to make them comfortable, functional, efficient and safe. They can include fire safety, HVAC (heating, ventilation and air conditioning), lighting, plumbing, ICT (information and communications technology), and so on. Building Information Modeling (BIM) is a digital representation of physical and functional characteristics of a facility. A BIM is a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle; defined as existing from earliest conception to demolition.

As we understood importance of building services, BIM software (Revit)& how to make model. building services and represented by a miniature model.

We studied overview of building services ,BIM software revit and form this new topic arises the designing of buildig services for further study .

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