

Yiping WANG^a, Bo WANG^b *

a Chongqing College of Architecture and Technology, Chongqing, China


b *Chongqing Architectural Design Institute Co., Ltd., Chongqing, China

Supported by the Science and Technology Research Program of Chongqing Municipal Education Commission (Grant No.KJQN202305203)

Abstract

In the context of smart city construction, medical buildings need to carry more functional requirements, and their detailed design is an important part of building engineering construction. Detailed design often has the characteristics of small fault tolerance, high accuracy, and high refinement in building engineering projects, so the requirements for designers are relatively high. Using BIM technology for detailed design can fully leverage its visual and integrated features and advantages, and improve the quality and effectiveness of detailed design. The article elaborates on the relevant concepts of BIM technology and smart medical buildings. Taking a medical college in Chongqing as an example, it elaborates on the specific application of BIM technology in the deepening design of smart medical buildings from the aspects of design concepts, design difficulties, and implementation plans, providing new ideas and suggestions for the design of medical buildings.

Model



To minimize the impact on the normal operation of the fire and weak current engineering in the first phase of the campus, a dedicated person will be assigned to liaise with the owner and obtain the relevant completion drawings for the first phase before the expansion is implemented; Review and confirm the route of the on-site power lines, optimize and deepen the design, avoid or reduce the interference with the operation of fire and weak current equipment in the first phase of the campus during construction, and shorten the possible short-term downtime during the conversion and grid connection as much as possible.

Fig. 1. BIM model during the construction phase of the main structure on the ground

Analysis

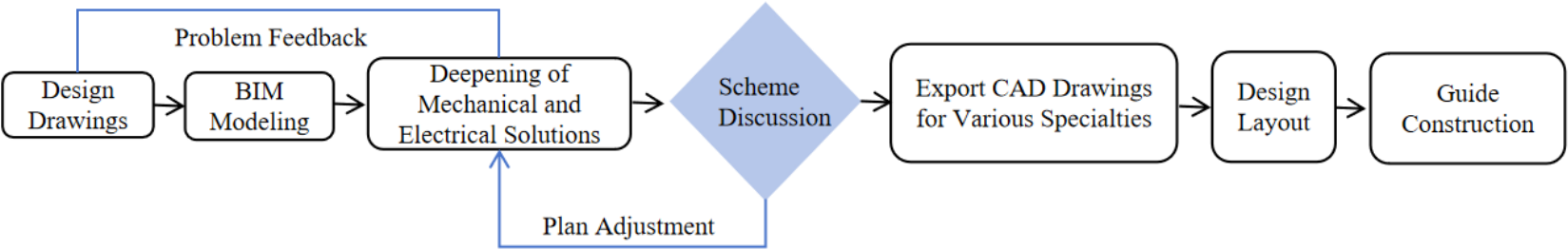


Figure 2. Design deepening process

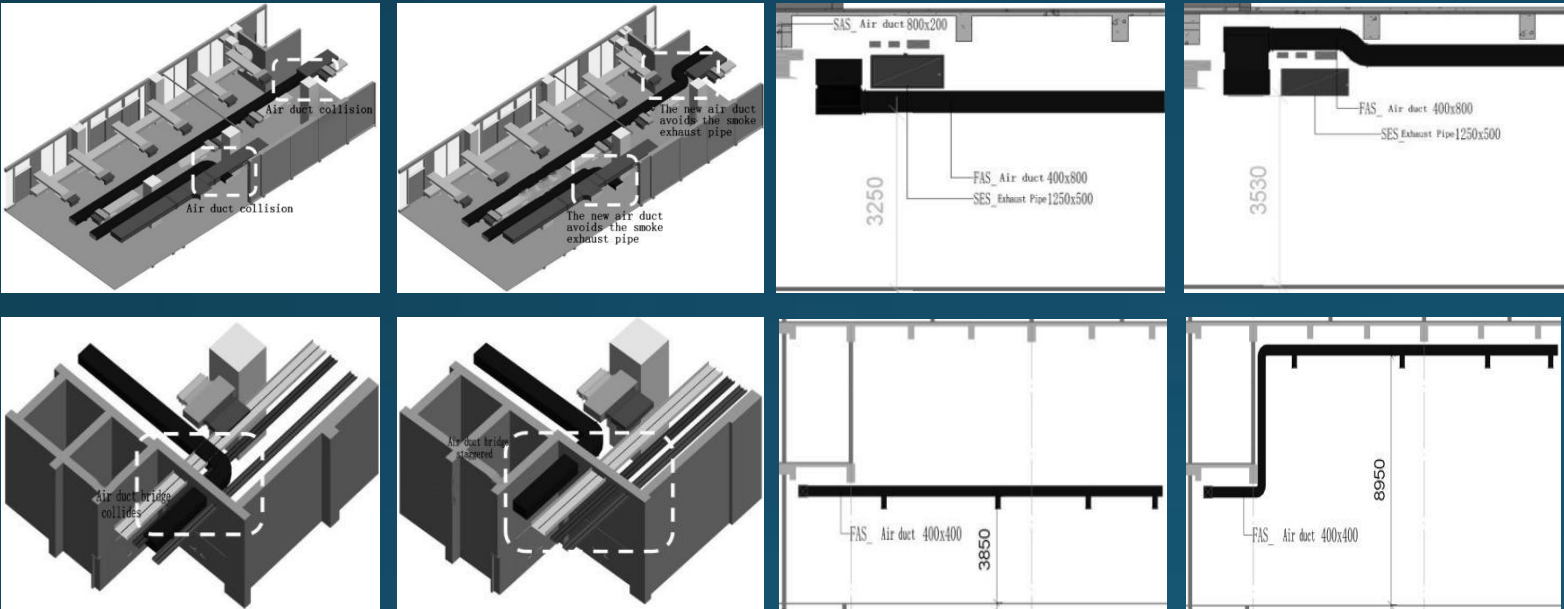


Figure 3. Comparison chart before and after pipeline optimization

Result

- BIM Pipeline comprehensive suggestion
- Consistent recommendations for BIM modeling
- Suggestions for building a BIM operation and maintenance management platform

BIM technology is used to conduct pipeline synthesis in advance during the design phase, comprehensively understanding the usage of pipeline layout space, and modeling and optimizing local mechanical and electrical pipelines. Regularly check whether the implementation of BIM in the construction drawing design phase is consistent with the BIM plan.

Conclusion

The application of BIM technology in smart medical buildings provides strong support for improving design quality, construction efficiency, and operation and maintenance management level. Through continuous technological innovation and standardized construction, BIM technology will play a greater role in smart healthcare buildings. In the future, with the continuous maturity of technology, BIM will become an indispensable tool in the medical construction industry, promoting the further development of smart healthcare.

Acknowledgement

Thanks for the support of The Science and Technology Research Program of Chongqing Municipal Education Commission (Grant No.KJQN202305203)

References

[1]Yu F.Q.BIM based intelligent operation and maintenance management technology for hospital buildings.Chinese Hospital Architecture and Equipment.2019.20(01)P88-91.

[2] Wu C.G.Exploration into the Optimization of Prefabricated Building Mechanical and Electrical Deepening Design Based on BIM Technology.Intelligent Buildings and Smart Cities.2022(1)P96-98.

[3]John T. Wilkins, Sarah E. Stafford, Elizabeth H. Weisman.Building Information Modeling (BIM) for Smart Hospital Design and Operation.2020.