CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1   Conclusion

Based on the descriptions that have been stated in the previous chapters, several conclusions were drawn as follows:

1. Clash detection tool identified design errors on the design of structural, architectural, and MEP model with overall 271 clash detected in this study. Most clash are detected between architectural component and MEP Component, around 210 clashes.

2. The results revealed Navisworks adequately recognizes design clashes that happen within building components, and they are settled in an appropriate time.

3. BIM implementation using Revit and Naviswork is able to detect potential conflicts early before construction work begins. Revit program serves to model system structure,

system architecture and MEP system. The Naviswork program is able to identify potential conflicts from modeling that has been created using Revit. The use of both programs as a form of BIM implementation is able to identify the irregularity contained in the shopdrawing so that the coordination process can be done earlier.

5.2   Recommendation

From some of the conclusions above, several suggestions will be given which are considered necessary input to the management. The suggestions are:

1. Integration of 3D models is required in the construction planning to have better visualization hence pointless errors can be prevented as to reduce the risk of cost overruns in the construction phase.

REFERENCES

Rizal Sebastian, W. H. E. V., 2009. "*BIM Application for Integrated Design and Engineering in Small*". Research Gate.

BIM. Sarmad Mehrbod, 2019. "*Beyond the clash: investigating BIM-based building design coordination issue representation and resolution*."

Snehal M. Jununkar, P. D. S. A. P. D. I. M., 2017. "*Application of BIM and Construction Process Simulation Using 5D BIM for Residential Building Project*". International Research Journal of Engineering and Technology (IRJET), p. 5.

Arumsari, P., Juliastuti., Al'farisi, M., 2018. "*Cost estimation using ministerial regulation of public work no. 11/2013 in construction projects.*" The International Conference on Eco Engineering Development 2017 (ICEED 2017). IOP Conf. Series: Earth and Environmental Science 109 (2017) 012033.

G. Bhamre , A. Patil and S. Pataskar. *, "Cost and Time Optimization for Construction of Residential Building by Clash detection in Building Information Model (BIM)",* International Research Journal of Engineering and Technology (IRJET), Jan 2017, Volume: 04, Issue: 01, pp: 550-553.

W. Guangbin and Wei L*, "Exploring the Highefficiency Clash Detection between Architecture and Structure"*, International Conference on Information Management and Engineering, Singapore, 2011.

Pranav Bhagwat, Rahul Shinde Clash *Detection - A New Tool in Project Management:,* 2016 IJSRSET | Volume 2 | Issue 4 | Print ISSN: 23951990

Aarti Nanajkar *"Implementing building information modelling (BIM) at AEC firms in India",* A Paper Submitted to the Graduate Faculty of the North Dakota State University.

N. S. Chougule, Prof. B. A. Konnur, "*A Review of Building Information Modeling (BIM) for Construction Industry"*: International Journal of Innovative Research in Advanced Engineering (IJIRAE) Issue 4 Volume 2 (April 2015).

Eastman C., Teicholz P., Sacks R. a Liston K. BIM Handbook: *A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors. 2nd Edition.* John Wiley & Sons, Inc., 2011. ISBN 978-04-7054-137-1