

Adaptive Model Compliance Checking

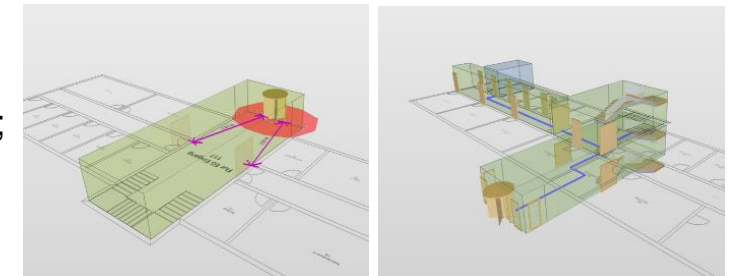
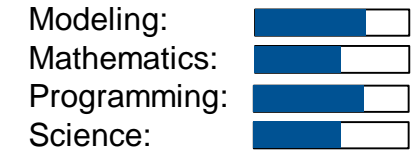
Task

This project aims at developing geometrical and spatial constraints oriented rulesets with the SMC API, which will later provide effective automatic checking for early building designs.

GENERAL INSTRUCTIONS:

- Get to know the Rules API (Java) of the Solibri Model checker (SMC);
- Develop geometrical and spatial constraints oriented rulesets with the SMC API;
- Verify the functionality and effectiveness of the developed rulesets on parametrized building model;
- Develop post-processing methods focused on localizing checking results back to related components in the BIM model.

Project Characteristics



t - Checked Model				
Egress Analysis				
§ Fire Compartment Area Must Be within Limits				
§ Fire Walls Must Have Correct Wall, Door, and Window Types				
§ Spaces Must Be Included in Fire Compartments				
§ Model Should Have Stairs				
§ Model Should Have Exits				
§ Door Minimum Dimensions				
§ Spaces Must Be Connected to Doors				
§ If Space Is Set to Be Fire Exit Space, It Has to Have Fire Exit Door				
§ Escape Route Analysis				

References

- [1] Solihin, W., & Eastman, C. (2015). Classification of rules for automated bim rule checking development. Automation in Construction, 53, 69–82. <https://doi.org/10.1016/j.autcon.2015.03.003>
- [2] Patlakas, P., Livingstone, A., Hairstans, R., & Neighbour, G. (2018). Automatic code compliance with multi-dimensional data fitting in a bim context. Advanced Engineering Informatics, 38 (July), 216–231. <https://doi.org/10.1016/j.aei.2018.07.002>
- [3] Sydora, C., & Stroulia, E. (2020). Rule-based compliance checking and generative design for building interiors using bim. Automation in Construction, 120, 103368. <https://doi.org/10.1016/j.autcon.2020.103368>

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