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Creating a finite element computational model includes several steps. The choice of the tool is critical and depends on various criteria. A successful model requires good organization and preparation.

Chapter C. Good practices to create a model

The different levels of analysis and the complexity associated with the model have already been defined in the previous chapter before the modeling stage. This chapter highlights the simplifications that can be used to create a model that is structurally representative of the real-life structure and the loads it is subjected to.

Chapter D. Analysis and processing of the results

Chapter E. How to ensure quality?

Below are some simple advice to assess the quality of the finite element calculations. The principal challenges are:

§ The proper use of the software

§ The appropriate modeling of the structural behavior

§ The traceability of the modeling hypotheses and results

The advice below covers the engineer's or the team's handling of the software, the verification controls that must imperatively conduct any engineer at the end of its modeling, and the tracing of the minimum items so that the work can be completed thereafter.

E.1 Starting with a new software

E.2 Model validation using self-checking

E.3 Traceability and group work

Chapter F. How to properly present the finite element calculation note?

This paragraph introduces the fundamental elements that must be present in a note to provide a clear description of a FE computational model.

F. How to properly present the finite element calculation note?

PART 3 – EXAMPLES AND COMPLETE CASE STUDIES

This part contains modeling examples for simple and more complex objects. They are presented as a complete or partial study or even a comparison of different models of the same structure.

If you happen to have an example that you wish to share with us of a complexity or paradox noticed on a part of a model, please send it to the following address: elements.finis@afgc.fr. (It could be a note about a real project rendered anonymously.)

Example A – Modelling a complex high-rise building

Example A – Modelling a complex high-rise building

Example B – Modelling of composite bridges

Example B – Modelling of composite and steel bridges

Example C – Modelling of beam grids

Example C – Modelling of beam grids

Example D – Simple example: modeling of a **Br wheel** [CH1]

Example D – Modelling of a Br wheel

Example E – Transverse bending of a prestressed concrete box girder

Example E – Transverse bending of a prestressed concrete box girder

Example F – Dynamic calculations of tanks

Example F – Dynamic calculations of tanks

Example G – Cable-stayed bridges

Example G – Cable-stayed bridges

BIBLIOGRAPHY

Link to the bibliography

FOLLOW-UP OF ADDS-UP AND MODIFICATIONS

List of adds-up and modifications

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