In this contribution we propose a generalized framework for multidisciplinary sensitivity analysis in civil engineering. We present a collaborative simulation environment for the optimization of human comfort in combination with static and geometric properties of a building section. The product model is based on the Industry Foundation Classes (IFC) and extended for the needs of the simulation environment. Flow, temperature and humidity fields required for human comfort prediction are computed by a CFD kernel based on the Lattice Boltzmann method whereas the structure problem is solved by a high order finite element method. Multidisciplinary sensitivity analysis is applied to several examples and shows the potential impact of our approach.

**Stichworte:** Multidisciplinary Optimization, computing, Product model, Agent System, CFD, CSM