

# Data Exchange Model and Software Interoperability to Improve the Energy Efficient Building Design Process

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## Abstract

The proposed research will create a model framework that link between the ongoing conceptual design stages of 111 stories high-rise project that I am working on in my consulting practice, with energy efficient performance modeling using data exchange system based on my Virtual Data Modeling Language (VDML) that I have created. The data exchange model will provide bidirectional information sharing, data reuse capabilities, and software interoperability. This research project is motivated and inspired by the current design and practice that the route to achieve energy efficient building and sustainable design from initiative through construction and development of a building life cycle can be very challenging and involved with many actors, required many collaboration, from many different disciplines, all with their own working methods. In the absence of established integrated model framework, there would be lack of effective communication and collaboration that lead to wrong design decision and solutions. Lack of interoperability is a major obstacle that limits the work flow usability due to difficulty in acquires information from building and environment. My goal is to create energy efficient building information system and framework to support the design of tall building to become energy efficient and sustainable building. At the conclusion, I will provide the published book and report about this software information exchange model that has database system and interoperable capabilities for the compliant applications. The published book will also explain about the built-in graphics interface that run on the web browser, which will display interactively building's energy performance on the internet.