Developing a computer assisted multi-disciplinary decision making platform.

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Abstract— The significant differences in the process of decision making in Architectural and Structural design has been an ongoing issue since the differentiation of the disciplines of architects and civil engineers. As these specializations develop, they further dissociate from each other, creating a larger gap in priorities and complicating the search for an actual common objective in the design of a project. The general process is irreversible since every step taken toward the advancement of each of the disciplines will be a step toward a goal that is different from the direction of the other associated disciplines. With the technological progress in all facets of the construction industry, the agenda of priorities and factors of decision making between structural and architectural design become richer and more divergent. Nonetheless, once factors of decision making can be automated, the number of data to be processed and the factors to be addressed by individuals can be minimized to a more workable level. Automation can be implemented through computer technology primarily on quantitative issues, and at a more advanced stage, on qualitative issues. This will provide more time to decision makers to engage on issues that can not be addressed by a decision making automated system, or concentrate on topics where there may be disagreement among the decision making parties with regards to the prioritization of factors.

A multiplicity of automated design processes can enable decision makers to assess alternative solutions and significantly accelerate the overall design process. As the computer becomes an autonomous decision making agent, the number of potential solutions can be tested and automatically generated in CAD or BIM format, enabling users to iterate and assess possible scenarios according to the metrics developed. A case of Tensegrity structures and of energy and light control are used as examples.

- Desired session format would be a PowerPoint presentation.
- Tentative participants to presentation would be the author.
- The topic for which the paper is best suited is “Architecture in Structural Engineering.”