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# (12) United States Patent

## Khainson et al.

# (54) SYSTEM AND METHOD FOR REALIZING A BUILDING SYSTEM THAT INVOLVES COMPUTER BASED MATCHING OF FORM TO FUNCTION

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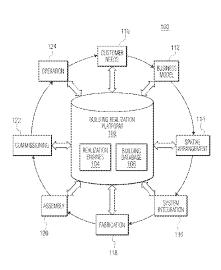
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#### (57) ABSTRACT

Systems and methods for realizing a complex building system are disclosed. The systems and methods utilize computer-based techniques to rapidly explore large numbers of pattern matching scenarios on a scale which heretofore has not been attempted. In an embodiment, the computerbased technique performs large-scale pattern matching operations to find the best match between functional patterns and spatial patterns. For example, with reference to a particular building system, the technique involves operational modeling to identify the types and volumes of services to provide (functional patterns) and to characterize the physical relationships between the services (e.g., adjacency preferences), along with establishing libraries of three dimensional spaces (spatial patterns), in the form of room and department libraries and building massing configuration libraries. Large numbers of functional patterns and spatial patterns are then matched to each other using cost-based algorithms to find the best match or matches between the form and function.

### 31 Claims, 60 Drawing Sheets



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