

structural steel framing in the form of large beams and columns are used to support the structure.

Lateral forces (e.g., wind and seismic forces) acting on buildings are managed and transferred by bracing. A common method of constructing a braced wall line in buildings (typically 5 stories or less) is to create braced panels in the wall line using structural sheathing. A more traditional method is to use let-in diagonal bracing throughout the wall line, but this method is not viable for buildings with many openings for doors, windows, etc. The lateral forces in buildings taller than five stories are managed and transferred by heavy steel let-in bracing, or heavy steel and/or concrete panels, as well as structural core elements such as concrete or masonry stair towers and elevator hoistways.

There is a need for a panelized and modular system for constructing and assembling buildings without relying on concrete and/or structural steel framing, heavy steel let-in bracing, and heavy steel and/or concrete panels.

Summary

A method and system disclosed herein provides generating an architectural diagram describing an architectural layout of a building, wherein one or more walls of the building are designated as standardized structural walls, automatically positioning each of the standardized structural walls to a geometric grid, and mapping (or “placing”), using a computer, one or more of a plurality of standardized structural components, including standardized panels, standardized columns, and standardized trusses to coordinates of the geometric grid.

In accordance with first aspect of the present embodiment, a method is disclosed. The method includes generating an architectural diagram describing an architectural layout of a building, wherein one or more walls of the building are designated as standardized structural walls, automatically positioning, using a computer, each of the standardized structural walls to a geometric grid by aligning the each of the standardized structural walls along grid lines of the geometric grid and along grid line intersections of the geometric grid, and mapping, one or more of a plurality of standardized structural components to coordinates of the geometric grid, wherein the plurality of standardized structural components comprises standardized panels, standardized columns, and standardized trusses.

In accordance with second aspect of the present embodiment, one or more tangible computer-readable storage media storing computer executable instructions for performing a

computer process on a computing system is disclosed. The computer process includes generating an architectural diagram describing an architectural layout of a building, wherein one or more walls of the building are designated as standardized structural walls, automatically positioning, using a computer, each of the standardized structural walls to a geometric grid by aligning the each of the standardized structural walls along grid lines of the geometric grid and along grid line intersections of the geometric grid, solving a plurality of mapping solutions for the each of the one or more standardized structural walls, selecting one of the plurality of mapping solutions for the each of the one or more standardized structural walls based on a predetermined criterion, and mapping, one or more of a plurality of standardized structural components to coordinates of the geometric grid based on the selected mapping solution, wherein the plurality of standardized structural components comprises standardized panels, standardized columns, and standardized trusses.

In accordance with third aspect of the present embodiment, a system is disclosed. The system includes a design module configured to generate an architectural diagram describing an architectural layout of a building, wherein the design module is configured to allow designating one or more walls of the building as standardized structural walls, a geometric grid module configured to generate a geometric grid having grid lines and grid intersections and to allow positioning, using a computer input device, one or more of the standardized structural walls to the geometric grid by aligning the each of the standardized structural walls along the grid lines and along the grid line intersections, and a mapping solution module comprising one or more computerized instructions stored on a computer memory, the mapping solution module configured to map one or more of a plurality of standardized structural components to the grid lines and the grid line intersections, wherein the plurality of standardized structural components comprises standardized panels, standardized columns, and standardized trusses.

In some implementations, articles of manufacture are provided as computer program products. One implementation of a computer program product provides a computer program storage medium readable by a computer system and encoding a computer program. Another implementation of a computer program product may be provided in a computer data signal embodied in a carrier wave by a computing system and encoding the computer program.

Other implementations are also described and recited herein.

Brief Descriptions of the Drawings

FIG. 1 illustrates a stud for use as a framing member in horizontal truss panels;

FIG. 2 illustrates a track for use as a framing member in horizontal truss panels;

FIGS. 3 and 3.1 illustrate a V-Braced horizontal truss panel;