Claims

1. A computer implemented method of constructing a building, the method comprising the steps of:

receiving an input specification for the building, said input specification specifying pre-harmonisation modules required to construct the building, said pre-harmonisation modules defined by respective pre-harmonisation module specifications comprising respective geometric parameters and respective attributes;

identifying which of the pre-harmonisation module specifications are stored in an electronically accessible database, said identified pre-harmonisation module specifications being referred to as first pre-harmonisation module specifications having associated geometric parameters and attributes which are stored in separate sections of the database;

harmonising the module specifications in the first pre-harmonisation module specifications to form a set of harmonised module specifications which specify harmonised modules which (a) substantially do not clash when they are used to construct the building, and (b) when assembled to form the building satisfy attribute criteria specified in the input specification; and

constructing the building using the harmonised module specification;

wherein step of harmonising the module specifications to form the set of harmonised module specifications comprises:

determining if analysis of one or more of a post clash-detection part, a post clash-detection assembly, or a post clash-detection master-assembly specification in question is required in order to establish if the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specification in question satisfy the attribute criteria specified in the input specification;

if analysis of said one or more of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question is required:

assigning corresponding attributes to the one or more of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question;

performing corresponding one or more analysis processes, maintaining the geometry and attributes of said one or more of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question in separate sections of the database throughout the course of the analysis;

determining if the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question satisfy the attribute criteria specified in the input specification;

if the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question do not satisfy the attribute criteria specified in the input specification, determining if the assigned corresponding attributes or the geometric parameters of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question need to be adjusted;

if the geometric parameters are to be adjusted, adjusting the geometric parameters so that the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question satisfy the attribute criteria specified in the input specification; and

if the attributes are to be adjusted, adjusting the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question so that the attributes of the first pre-harmonisation module specifications satisfy the attribute criteria specified in the input specification..

2. The method according to claim 1 further comprising, prior to the harmonising step, the steps of:

generating pre-harmonisation module specifications which are not stored in the database, said generated module specifications being referred to as second pre-harmonisation module specifications;

wherein the first pre-harmonisation module specifications together with the second pre-harmonisation module specifications form a set of pre-harmonisation module specifications; and

wherein the harmonising step comprises harmonising the set of pre-harmonisation module specifications comprising the first pre-harmonisation specification modules together with the second pre-harmonisation module specifications.

3. The method according to claim 1, wherein the pre-harmonisation modules required to construct the building comprise one or more of part specifications, assembly specifications, master-assembly specifications, and building specifications, and wherein the step of harmonising the module specifications to form the set of harmonised module specifications comprises the steps of:

determining geometric parameters for the one or more of the part specifications, assembly specifications, master-assembly specifications, and building specifications;

determining attributes for at least some of the one or more of the part specifications, assembly specifications, master-assembly specifications, and building specifications; and

storing the geometric parameters and the attributes in the electronically accessible database, wherein the geometric parameters and the attributes for each of the one or more of the part specifications, assembly specifications, master-assembly specifications, and building specifications are stored in separate sections of the database.

4. A method according to claim 2 wherein the first and second pre-harmonisation module specifications are stored as validated tokens in a blockchain network.

5. An apparatus for facilitating construction of a building, the apparatus comprising:

one or more computer processors;

one or more tangible non-transitory computer readable storage media storing a computer executable software program for directing the plurality of processors to execute a method comprising the steps of:

receiving an input specification for the building, said input specification specifying pre-harmonisation modules required to construct the building, said pre-harmonisation modules defined by respective pre-harmonisation module specifications comprising respective geometric parameters and respective attributes;

identifying which of the pre-harmonisation module specifications are stored in an electronically accessible database, said identified pre-harmonisation module specifications being referred to as first pre-harmonisation module specifications having associated geometric parameters and attributes which are stored in separate sections of the database;

harmonising the module specifications in the first pre-harmonisation module specifications to form a set of harmonised module specifications which specify harmonised modules which (a) substantially do not clash when they are used to construct the building, and (b) when assembled to form the building satisfy attribute criteria specified in the input specification; and

constructing the building using the harmonised module specification;

wherein the harmonising step comprises the steps of:

determining if analysis of one or more of a post clash-detection part, a post clash-detection assembly, or a post clash-detection master-assembly specification in question is required in order to establish if the attributes of the post clash-detection part, the post

clash-detection assembly, or the post clash-detection master-assembly specification in question satisfy the attribute criteria specified in the input specification;

if analysis of said one or more of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question is required:

assigning corresponding attributes to the one or more of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question;

performing corresponding one or more analysis processes, maintaining the geometry and attributes of said one or more of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question in separate sections of the database throughout the course of the analysis;

determining if the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question satisfy the attribute criteria specified in the input specification;

if the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question do not satisfy the attribute criteria specified in the input specification, determining if the assigned corresponding attributes or the geometric parameters of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question need to be adjusted;

if the geometric parameters are to be adjusted, adjusting the geometric parameters so that the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question satisfy the attribute criteria specified in the input specification; and

if the attributes are to be adjusted, adjusting the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question so that the attributes of the first pre-harmonisation module specifications satisfy the attribute criteria specified in the input specification..

6. One or more tangible non-transitory computer readable storage media storing a computer executable software program for directing one or more computer processors to execute a method comprising the steps of:

receiving an input specification for a building, said input specification specifying pre-harmonisation modules required to construct the building, said pre-harmonisation modules defined by respective pre-harmonisation module specifications comprising respective geometric parameters and respective attributes;

identifying which of the pre-harmonisation module specifications are stored in an electronically accessible database, said identified pre-harmonisation module specifications being referred to as first pre-harmonisation module specifications having associated geometric parameters and attributes which are stored in separate sections of the database;

harmonising the module specifications in the first pre-harmonisation module specifications to form a set of harmonised module specifications which specify harmonised modules which (a) substantially do not clash when they are used to construct the building, and (b) when assembled to form the building satisfy attribute criteria specified in the input specification; and

constructing the building using the harmonised module specification;

wherein the harmonising step comprises the steps of:

determining if analysis of one or more of a post clash-detection part, a post clash-detection assembly, or a post clash-detection master-assembly specification in question is required in order to establish if the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specification in question satisfy the attribute criteria specified in the input specification;

if analysis of said one or more of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question is required:

assigning corresponding attributes to the one or more of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question;

performing corresponding one or more analysis processes, maintaining the geometry and attributes of said one or more of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question in separate sections of the database throughout the course of the analysis;

determining if the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question satisfy the attribute criteria specified in the input specification;

if the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question do not satisfy the attribute criteria specified in the input specification, determining if the assigned corresponding attributes or the geometric parameters of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question need to be adjusted;

if the geometric parameters are to be adjusted, adjusting the geometric parameters so that the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question satisfy the attribute criteria specified in the input specification; and

if the attributes are to be adjusted, adjusting the attributes of the post clash-detection part, the post clash-detection assembly, or the post clash-detection master-assembly specifications in question so that the attributes of the first pre-harmonisation module specifications satisfy the attribute criteria specified in the input specification..

7. A program that causes one or more processors to perform each step of any of the methods of claims 1 to 4.