Flow of Events for Use Case – Define Grid

Change Log	
08/10/2004	Renamed from UC-DefineGrid
31/10/2004	Finalized for pre-integrated model

Overview

Specifies the requirements for the definition and display of a Cartesian grid on a map.

Process

Preconditions

Map area should be defined.

Actors

Applicant

Main Flow

Flow	Entity
1. Use specification for IfcGrid	IfcGrid
2. A planar design grid (IfcGrid) defined in 3D space used as an aid in locating elements. The position of the grid (GridPlacement) is defined by a 3D coordinate system (and thereby the design grid can be used in plan, section or in any position relative to the world coordinate system). The position can be relative to an object placement or to another grid. The XY plane of the 3D coordinate system is used to place the grid axes, which are 2D curves (e.g., line, circle, trimmed curve, polyline, or composite curve).	IfcGrid IfcGridPlacement IfcLine IfcCircle IfcTrimmedCurve IfcPolyline IfcCompositeCurve
3. The inherited attributes Name and Description can be used to define a descriptive name of the grid and to indicate the grid's purpose. Examples for the use of a description are "the grid can be orthogonal, angular, or polar", or "a grid can be used for a structural grid, planning grid, geodetic grid or any type of grid to which objects will be aligned".	IfcVitualGridIntersection
4. A grid is defined by (normally) two, or (in case of a triangular grid) three lists of grid axes.	IfcGridAxis
5. Grid annotation may be applied from attributes specified using capabilities within the IfcPresentationXXX resources.	

Post Conditions

Grid is defined, shown and annotated as appropriate.

IFC Usage and Extension Requirements

Existing Entity/Class Usage

Entity Class Name	*Usage*
IfcGrid	A planar grid defined in 3D space
IfcGridAxis	An individual axis defined in the context of a grid. The axis definition is based on a curve of dimensionality 2. The grid axis is positioned within the XY plane of the position coordinate system defined by the IfcGrid.
IfcGridPlacement	Placement and axis direction of the grid
IfcVirtualGridIntersection	The derived location of the intersection between two grid axes. Offset values may be given to set an offset distance to the grid axis for the calculation of the virtual grid intersection. The two intersecting axes define the intersection point, which exact location (in terms of the Cartesian point representing the intersection) has to be calculated from the geometric representation of the two participating curves.

Issue List

Question	*Answer*