Civil BIM and Digital Engineering

The Civil industry never stands still! Years ago, only alignments and cross sections were used for design. Next, string design was introduced to model the complex geometries that cross sections couldn't handle...and now we have Civil BIM!

12d and BIM

Building Information Modelling (BIM) is fast becoming essential on all projects.

To date, most of the BIM standards have only been for vertical buildings and not Civil works.

From its inception, 12d Model has been an open 3D Civil and Surveying Digital Engineering package with a published interchange format 12da/12dXML for all of its data. Now using the International Open BIM interchange format, IFCs, almost all the data in 12d Model - super strings, tins, drainage and sewer networks, and trimeshes - can be written out for seamless transfer to other BIM packages, including attributes and meta data as user defined Property Sets.
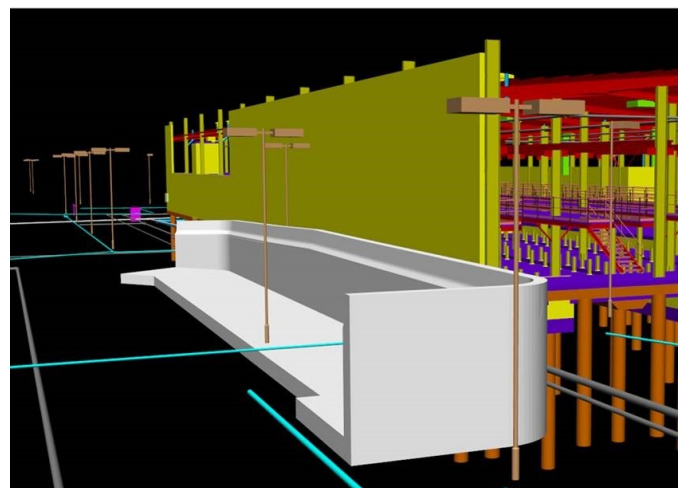
Conversely, 12d Model can read in IFC files from Architectural and other IFC supporting packages such as ArchiCAD, Revit, Tekla and VectorWorks. And by utilising the power of 12d Model, any localised data read in can be quickly

transformed so that it accurately fits in with the civil data in real world coordinates such as MGA.

This revolutionary approach means that 12d Model can display, perform clash detection, set out for construction and do conformance checks, for data in projects ranging from building sites that cover hundreds of square metres, to roads, rail and other linear structures that extend over tens or hundreds of kilometres.
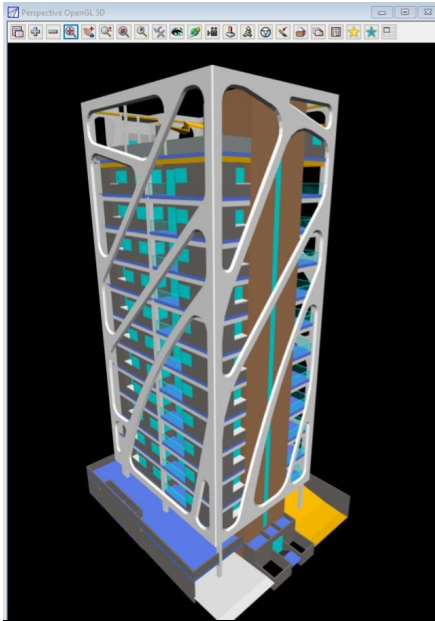
Using their unique knowledge, 12d Solutions has worked on the Precinct Information Modelling project as part of the CRC for Low Carbon Living. And as a founding member of the Open BIM Alliance, 12d Solutions is actively interacting

✓ 12d Model included BIM functionality long before this was a 'hot topic'...experience the difference today!

with other Vendors supporting the International IFC format.

12d Solutions is also involved in the International BuildingSMART IFC Summits and meetings that define the IFC format, and in particular the
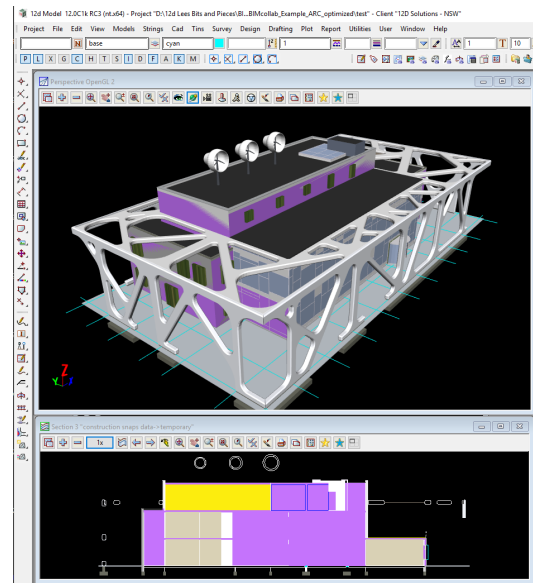

development of the coming IFCs and Civil BIM standards for Alignments, Roads, Rail, Bridges and Tunnels.

The Benefits of 12d BIM Functionality

Data fidelity – make data loss a thing of the past!

3D Data and Civil Data – 12d Model is a full 3D package but also supports important Civil data such as horizontal and vertical alignments, drainage, sewer and water networks, and null z-values.

Integrated Work Flow – the collection and generation of data from the initial survey pickup, through all design, construction and as-builts is integrated

into the normal 12d Model workflow. No interpackage transfers are required.

Data Reuse – 12d Model maximises data reuse and minimises manual editing.

No Additional Cost – IFC BIM is a standard part of 12d Model and is included free of charge for all customers on subscription or annual maintenance.

Roads and Highways

12d Model's design option is the smarter solution for the design, modification and maintenance of Road and Highway projects.

Enjoy advanced 3D tools to design local and major roads, intersections, roundabouts, highways, interchanges and much more.

Ports and Dredging

12d Model is the solution for port infrastructure and dredging, easily managing the very large datasets and complex volume calculations often required by these projects.

A complete range of flexible and customisable volume calculation tools allow teams to extract and present the information quickly and easily.

Land Development

12d Model is the most versatile solution for the creation of sustainable land development projects, including residential, commercial and industrial developments, recreational areas, landfills, and agriculture projects.

Easily manage all aspects of your land development project from earthwork quantities, road design utilities and drainage design.

Airport Infrastructure

12d Model provides a solution for the design, construction and analysis of new airports, as well as the upgrade and maintenance of existing runways and airport infrastructure.

Easily manage large airport infrastructure projects and share data across multi-disciplinary teams.

Rail

12d Track has been specifically designed for the survey, design and construction of light, heavy and high speed rail projects.

Extensive railway tools in 12d Track allow the rail designer to quickly and easily design their projects. These options are built on the existing 3D modelling and design tools available in 12d Model.

Mining Infrastructure

12d Model's powerful set of exploration, site investigation, survey and analysis tools are crucial for the initial design, construction and ongoing operation of mining projects.

Comprehensive tools for the survey, design and construction of access roads, railways, earthworks and services allow for the coordinated design and management of mining infrastructure from within 12d Model.

Drainage, Sewer and Utilities

12d Model provides comprehensive tools for the design, analysis and optimisation of stormwater and sewer projects using rational, dynamic (hydrograph) and 2d drainage methods.

Powerful clash detection management allows for efficient 3D modelling of service networks such as gas, electricity, telecommunications and water prior to construction.

Surveying

12d Model is a complete surveying package providing the tools to manage all facets of surveyed data including LIDAR, topographical, as-built, conformance, traversing, geodetics, data mapping, labelling and much more.

The 12d Field option runs on a ruggedized tablet and gives the user access to full 12d Model functionality, allowing you to take the entire project into the field with the most comprehensive pick-up and set-out tools.

Oil and Gas

12d Model assists with the design, construction and mapping of oil and gas pipelines, original site exploration and the wide range of infrastructure required for oil and gas projects.
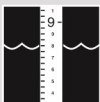
Accurate 3D modelling and the ability to share data between users allow teams to quickly and easily coordinate designs.

Construction

12d Model is the ultimate software for construction with powerful set-out options, direct interfaces to machine control and detailed conformance reporting and auditing.

Manage 3D data and control volumes, quantities and progress claims with 12d Model. Set-out your project and undertake conformance and as-built surveys live on-site using 12d Field.

Rivers, Dams and Hydrology

12d Model handles very large datasets and interfaces with a wide range of analysis packages, making it perfect for flood studies and the management of rivers and dams.

12d has partnered with industry leading analysis software, allowing users to apply 2D drainage analysis from within 12d Model.

Environmental

12d Model's ability to handle very large datasets combined with flexible and comprehensive 3D analysis and modeling tools make it perfect for a wide variety of environmental projects.

Existing workflows can adopt 12d Model easily as it allows users to directly interface with GIS systems and most software packages and file formats.

Why Choose 12d?

- **Powerful data processing & intelligent functionality.**
- **Modular, easy to update & completely customisable.**
- **Seamless integration with major industry software and hardware.**
- **Used in over 55 countries worldwide.**
- **Friendly support & training from industry experts.**

12d® Model