



News from
12d Solutions



Welcome

...to our 'Bumper Christmas Edition' of The Dirt Digger...as 2020 draws to a close, I think we're all breathing somewhat of a sigh of relief!

This time we'll be featuring:

- **Holiday Season Office Closures**
- **Case studies on our website**
- **COVID-19 update**
- **12d Model Case study: SMEC**
- **12d Model Case study: Aurecon**
- **12d Model Online Training**
- **ISCDT website launch**
- **New YouTube Playlist**
- **12d Technical Forum 2021 update**

We look forward to hearing any [feedback](#) or news you might have!

Regards,

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Holiday Season office closures

The Sydney Head Office of 12d Solutions will be closed for the holidays from lunch time on Friday 18th December 2020, re-opening the morning of Monday 4th January 2021.



We'd like to wish all those in our extended 12d Family a very happy and safe holiday season!

Case studies revamp

We've also been working on refreshing the [Case Studies](#) area of our website, to make it easier to find items of interest.

With over 100 12d Model case studies, it can be difficult to navigate without the ability to sort!

COVID-19 update



The 12d Solutions team is still working remotely - we've decided it's the best option for us for now, and even though it's tough some days, the health and safety of our team members remains top priority.

We've also switched to a primarily online format for our training, and this is going really well. Some face-to-face courses are running in WA, but the online format is allowing 12d Users in our farthest reaches of the globe an increased opportunity to be involved in many levels of training like never before.

The 12d Synergy team is back in their office, but with split teams to foster social distancing, and some staff doing a combination of working from home and attending the office. This not only helps with social distancing but also assists with work-life balance.

Makram Jaibaji, our 12d Model Reseller in Jordan, actually contracted COVID-19, but has recovered now, thankfully.

If you're still working from home, just a reminder that there are no 12d Solutions licence restrictions when doing so. Standalone 12d Model dongles can be used anywhere and anytime, and there's no restriction to accessing network licences from outside the office.

As such, there is no restriction on using a VPN, or opening up a port to access your 12d Model network licences from home. If your IT department is unclear on how to proceed, please [contact your local Support team](#) to discuss how we can help.

If you've been stood down from work and want to use this time to up-skill at home, we're happy to discuss how we can help you with that, too.



Practical virtual reality

Over the past few years, the SMEC Perth office has grown their business more than eight-fold, and it's easy to see how when you examine the innovations that they are using to engage their clients. A key component of SMEC's technical service delivery is Digital Engineering, which is fundamental to how they create value for clients and their projects.

For example, with the help of Revizto - "a cloud-based visual collaboration software for architects, engineers and contractors to communicate their design within the project team in a navigable 3D environment" (source: Wikipedia) - SMEC regularly sends 12d Model IFCs to Virtual Reality (VR) headsets for their clients to experience designs in ways they've never encountered before!

Using 12d Model alone, the SMEC team already knew they could present clients with a TIN, which would look good and have the relevant information...but you can't walk around on a TIN! Enter VR.

After determining that VR would be beneficial to their processes, the SMEC team set out to test various methods of delivery as they needed to find the most effective workflow to ensure they were not losing any intelligence on the way into the model.

Some potential solutions required gaming software experience (which can become costly) and others involved reading in and out of a variety of third-party packages.

Reading 12d Model IFCs into Revizto (via a third-party package) has been the best solution for the SMEC team at this stage, but they continue to refine their processes as they go, ensuring they're always at the cutting edge of available technology.

To support the federated model process, SMEC utilised an additional function in Revizto to push the IFCs into the HTC VIVE plugin for VR. Attributes in 12d Model could then be seen visually in the digital platform within the Revizto environment - *i.e.* they could see the attributes on a screen as they're walking around the model!

SMEC's Team Leader - Design & Drafting, Roads & Highways (Perth), Allan Walker said, "Once time has been spent writing 12d Model attributes and meshes, it's an easy process to export to that environment. We engage this process for public consultation, virtual site walks, and general correspondence. It's been a huge asset at times when clients have looked at a design solution in 3D and don't really understand the complete concept. With the VR headset, they are easily submersed into the environment - measuring physical distances, checking how big an object would be in the project, *etc.*"



One detailed design project SMEC had been working on involved 4.5GB IFC outputs, which created a 4GB Revizto file that took just half an hour to upload into the cloud. In fact, the whole turnaround for the federated process can be as quick as 15 minutes for smaller models!

Including the process of draping on a 3D CAD file from the landscape architect, the SMEC team finds that it generally takes just half a day to put everything into the environment and output the IFC - this time saving is extremely beneficial.

SMEC is currently working with Main Roads Western Australia and the Public Transport Authority on a project for which the local city council was unsure about the placements of trees, or of how removing existing trees would impact on the streetscape. The SMEC team worked with a landscape architect and created a series of proposed tree locations using 12d Model's BIM trimesh object apply, then submersed these into the model itself, so that with VR goggles, they could physically see new trees replacing old trees and create the most appealing environment for the situation. This enabled the clients to determine what would be the finished product.

The feedback SMEC has received from clients on these technological innovations has been outstanding. They've been able to resolve queries through digital discussions and virtual site walks so that clients can see solutions before committing, meaning they were happy and able to close off RFIs in a timely fashion.

VR really helps people perceive solutions, especially those who benefit from a visual representation.

Another advantage is when designs change based on new information and feedback, it's already set up and can run in the background - revisions are really simple once it's all loaded in.

The duration of the process is dependent on internet speed - hefty IFCs can slow down some systems - but it's a time saver nonetheless when compared with previous processes.

SMEC has been working on this method for several years - they've conducted rigorous testing to create the best possible format for client engagement. And the more projects they're working on, the more they utilise it.

The integration of Digital Engineering as best practice has contributed greatly to the growth of the Perth office over the past few years. Other SMEC offices are also using VR and they encourage their clients to come in for a live demo.

12d Solutions can't wait to see what SMEC comes up with next!



Days in the sun

12d Model software was used by Aurecon in Thailand for the civil design of three Solar Farm projects located in the Tak and Sukhothai Provinces in Northern Thailand. These projects consist of Photo Voltaic solar panels spread over an area of approximately 575,000 m² in Tak and 150,000 m² in Sukhothai, with a combined generating capacity of 34 MW.

These Solar Farms will alleviate pressure on existing electrical networks and strengthen Thailand's target for renewable energy. 12d Model was used for the design of the earthworks, roads and surface drainage.

The solar farms are located on gently sloping to steep terrain. Layers of hard



rock also existed below the soil. The challenge was to regrade the land to a consistent and gradual slope that would make the foundations easier to construct.

The aspect of the grade of the sites had to be such that each panel faced south, with no shadow effect from adjacent panels. In Thailand, the optimum slope of each panel is

15° south, with a constant surface gradient of less than 2%.

All of the sites were previously used as farms, and there was no established drainage. Runoff from neighbouring properties needed to be cut-off, and effective drainage was required at each site to prevent flooding. As much of the electrical cabling is underground, the control of flooding was extra important.

Aurecon's client for this project was Bouygues Energies and Services. The client was interested in cost savings and wanted cut and fill volumes optimised. They also wanted to limit cut in the underlying rock. Rock on the site was hard and is both costly and time-consuming to remove.

Aurecon's 12d team leader for the project was Keerakiat Khamsee. Using 12d Model for the topographical survey and geotechnical report, the team was able to create TINs of the existing levels and the underlying rock layers. TINs are a form of vector-based digital geographic data and are constructed by triangulating a set of vertices (points). They produce a 3D surface that can be used to determine volumes. Closely spaced range files of 0.5m were used to accurately estimate the soil volumes and rock volumes.

Using experience, good design principles and some trial and error, the final excavation surfaces were created. Slopes and berms were set up to control drainage. The final design levels were then adjusted to balance cut and fill volumes, reduce excavation in hard rock and making sure that the aspect of the final surface maximised the solar gain in the Photo Voltaic Panels.

Several iterations were developed and refined, prior to completing the Final For Construction documents.

Using 12d Model, Aurecon was able to optimise the design to achieve the project objectives of maximising solar power from the Photo Voltaic panels, controlling stormwater run-off, balancing cut and fill, and limiting excavation in hard rock. Aurecon worked closely with Bouygues Energies and Services to complete the project on time and within budget.

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12d Model training...wherever you are!

Most face-to-face 12d Model training (including in-house) remains on hold until further notice. We're able to conduct some face-to-face training in Perth, so keep an eye on our [website](#) for the latest dates.

For those in other regions, we're conducting online training - keep an eye on the [training website](#) for the latest dates.

You can also check out the online training options being offered by our NSW/ACT/SA reseller, [Extra Dimension Solutions!](#)

If you haven't already done so, please subscribe to our 12d Model [YouTube Channel](#) for lots of great video content - it's organised into playlists by topic, and all our previous webinars are on there in their own playlists, so you can catch up on any of those you might have missed.

ExDS has also made their [Introductory and Basic Training Resources](#) (Design & Survey) available online free of charge, so if you're just starting out with 12d Model, that would be a great place to start honing your skills! Their [Online Help](#) page has help for common design tasks, such as Alignment Design, Speed Tables, SA Computators, Visualisation Timelines.

ISCDT website launch

And speaking of training...we're excited to announce the recent launch of the all-new ISCDT Training website, www.iscdt.com.au!



The Institute of Surveying and Civil Design Training Pty Ltd has been our primary authorised 12d Model Training Centre for several years now, but previously we've been running registrations through 12d.com. The new platform allows for online registration AND credit card payments!

12d Wiki

The team at Extra Dimension Solutions is continually updating and providing the latest in 12d Model Software support via [12d Wiki](#).



Check out the 12d Model Wiki website for tips and workflow information to ensure you gain the most out of your 12d Model Software.

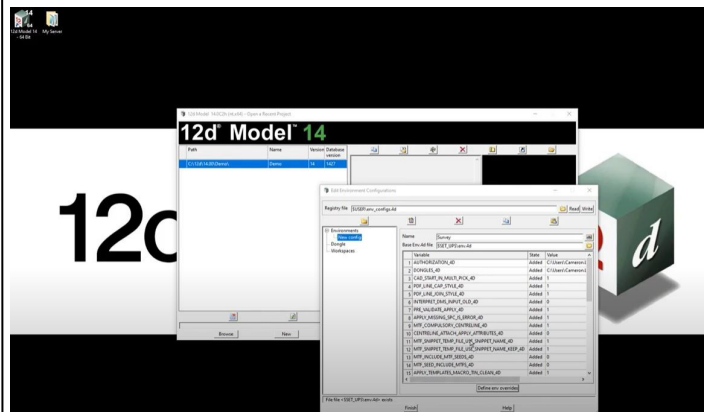
The Wiki has been written in a format matching the main menu structure within 12d Model Software, to facilitate technical support.

12d Wiki was written by the Technical Support team, and exists to supplement the 12d Model Reference Manual with practical examples and hands-on advice.

Installing and configuring 12d Model

You asked for it, and we've delivered...check out our brand new [YouTube playlist](#) that takes you through installing and configuring 12d Model, from start to finish!

It's a great way for new 12d Modellers to get 24/7 assistance with getting started.



12d Technical Forum 2021 going online

We previously announced that the event that was to be the 2020 12d Technical Forum has currently been postponed, to 1-3 August 2021. As things are still so uncertain with regard to travel, even domestically, we've since had to make the decision to turn this into an online event rather than an in-person one. The health and safety of all our staff and delegates remains top priority for us, so we feel this is the only viable option at this time. Stay tuned for more details in the new year!



Welcome Aboard to our New Licences and Upgrades from...

12d Model

2 Develop Urban – Qld
 2Survey – Vic
 360 Degree Surveying – Vic
 360 Surveying – SA
 A & C Surveys – NZ
 Ace Contractors Group – Vic
 Acor – NSW
 Adamson Shaw – NZ
 ADW Johnson – NSW
 AECOM – Qld, WA
 Aerodrome Management Services – WA
 Affinity Surveys – NSW
 Agustín Consulting – Vic
 AKEL Consulting Engineers – NZ
 Alexander and Symonds – SA
 Alliance Surveying – WA
 Amey – Vic
 AR & Associates – NZ
 Arc Infrastructure – WA
 Arcadis – Qld
 Arcos Unit Group – Qld
 Arma Surveying – NSW
 Arete Survey Solutions – NSW
 ARO Industries – Qld
 Asha Engineering – Qld
 Ashe Civil Engineering and Design – NSW
 Asset Survey Solutions – Vic
 Aurum Survey Consultants – NZ
 AusNet Transmission Group – Vic
 Auspat Land Survey Australia – NSW
 Australian Rail Track Corporation – SA
 Axiom Spatial – NSW
 BA Surveys – SA
 Barker Ryan Stewart – NSW
 Barry Hunt Associates – NSW
 Barwon Water – Vic
 BC Civil Consultants – NSW
 Benchmark Surveys – WA
 Beveridge Williams – NSW, Vic
 Bennett + Bennett – Qld
 Bereza Civil Surveys – ACT
 BG & E – Qld, WA
 Big Sky Imagery – WA
 BIM ONE – Qld
 Birzulis Associates – NSW
 BL Civil – Qld
 Bligh Tanner – Qld
 Bloxam Burnett and Olliver – NZ
 BM Engineering Surveys – WA
 BMT Commercial Australia – Qld
 Bonisch Surveyors – NZ
 Brandon & Associates – Qld
 BTE Consulting – NSW
 BTW Company – NZ
 Bucky Contracting – WA
 Bundaberg Regional Council – Qld
 BYLOR JV – UK
 CADS Survey – WA
 Calibre Group – NSW, WA
 Cameron Fauvel Projects – NZ
 Cardno – NSW, Qld
 Cardno TGM – Vic
 Cato Bolam Consultants – NZ
 CBP Engineers – Qld
 CDM Smith – Qld
 Centreline – WA
 Centurion Survey – NSW
 Chetwin Land Surveying – NZ
 Chrisp Consulting – NSW
 City of Gold Coast – Qld
 Civil IQ – Qld
 Civil360 Engineering – Qld
 CivilSurv – NSW
 CIVITEC – NZ
 Civix – NZ
 Clark Fortune McDonald & Associates – NZ
 Clarkstone Surveyors – NSW
 Cleary Bros – NSW
 Clough Engineering – Qld, WA
 Cogswell Surveys – NZ
 Coleman Engineering Services – ACT
 Consone Consulting – NT
 Construction Sciences – NSW
 Consurv – WA, NZ
 Cook Costello – NZ
 Cook Shire Council – Qld
 Cookson Land Surveying – NZ
 Cormac Rd Civil – Qld
 CPB Contractors – NSW, Qld, Vic, NZ
 CPBLL JV – NSW
 CQUEST – Qld
 Craig McAllister – Qld
 Creo Consultants – Vic
 Crushing Services International – WA
 D & C Civil – Qld
 de Groot and Benson – NSW
 Degotardi Smith & Partners – NSW
 DELACO Subdivision and Architecture – NZ
 Dept of Transport & Main Roads – Qld
 Detailed – NZ
 Digital Surveying Solutions – WA
 Digitise Consulting – NSW
 Diversi Consulting – NSW
 Doval Constructions – Qld
 Downes Group – Qld
 DPH Surveys – WA
 Dryside Engineering – SA
 DTS Group – Qld
 Durkin Construction – NSW
 E2Designlab – Qld
 EDGE (Civil) – Qld
 Edgeloe Engineering – WA
 Element IMR – NZ
 Engineering Outcomes – NZ
 Engineering Surveys – SA
 Enspire Solutions – NSW
 Envelope Surveying – NZ
 EPS Consulting Group – NZ

Equity B B – Qld
 ESO Surveyors – NSW
 Essential Survey Services – Qld
 Eurobodalla Shire Council – NSW
 Everest Consultants – NZ
 EWWF Consulting Engineers – NSW
 Ferguson and Roods – Qld
 Flat Out Surveying – Vic
 Fortescue Metals Group – WA
 Fredriksen Maclean & Associates – Qld
 Friends Civil Engineering – Qld
 FSC Group – Vic
 Full Circle Surveyors – Qld
 Fulton Hogan Group – NSW, Qld, Vic, NZ
 Future Generation JV – NSW
 Fyfe – Qld
 Gandy and Roberts – Tas
 Gassman Development Perspectives – Qld
 Gemlife Administration – Qld
 Genesis Engineering Consultants – Fiji
 Geleco – Qld
 GEO Image Services – NSW
 Geodezia Survey and Spacial – NSW
 Geosurv – NSW
 Geoworks – NZ
 GHD – Qld
 GM-CCS – Qld
 GR Engineering Services – WA
 Greenfield Technical Services – WA
 Hail Creek Coal – Qld
 Hall Contracting
 Haro Designs – Qld
 Harrison Grierson – NZ
 Harrison Infrastructure Group – Qld
 Hatch – Qld
 Hawkkey Services – NSW
 HCE Engineers – Qld
 HDS Australia – WA
 Heading & Associates – Vic
 Heavy Construction Solutions – NSW
 Hell Engineering Consultants – Vic
 Heritage Geomatics – SA
 Horizon Landmarks – NZ
 Hughes & Associates – NSW
 Hydro Electric Corporation – Tas
 i Consulting – Qld
 IDC Group – NZ
 Indesco Consulting Engineers – NSW
 Infinity Surveys – NSW
 Infraology – WA
 Inovo Projects – NZ
 Insight Survey – Qld
 InsiteSJC – Qld
 Integral Surveys – NSW
 Ipswich City Council – Qld
 JAC Surveys – Vic
 Jacobs Group – Qld, WA
 Janes and Stewart Structures – Qld
 JCA Land Consultants – Vic
 JCO Consultants – NSW
 JEA Survey – NZ
 JFP Urban Consultants – NSW
 JJ Barber Holdings – NZ
 JMC – NZ
 Joel Darling – Qld
 John Holland – NSW, Qld, Vic
 John Stafford West – NZ
 Johnson Civil – NZ
 Jones and Stanger – NZ
 JR Kama – Qld
 Jurovich Surveying – WA
 Juta Consulting – NZ
 Kaku Surveying – NSW
 Kaymak Survey – Qld
 KCB Australia – Qld
 Kellogg Brown and Root – NSW, Qld
 Keystone Consultants – Fiji
 KiwiRail – NZ
 Knobel Engineers – Qld
 Kopi Engineering – NZ
 KR Surveys – WA
 KW Surveys – NZ
 Lanco Group – Vic
 Land Dimensions – Vic, NZ
 Land Dynamics Australia – NSW
 Land Matters Property Consultants – NZ
 Land Surveys No Problems Just Solutions – NSW, Vic, WA
 LandLink – NZ
 Larsen and Toubro – India
 LCG – NSW
 LD Eng – Vic
 Leigh Surveyors – Qld
 Lendlease – NSW, Qld, Vic
 Lendlease Engineering Acciona Coleman Rail JV – Vic
 Lendlease Samsung Bouygues JV – NSW
 Lindsay Dynan – NSW
 Linke and Linke – NSW
 Liverpool City Council – NSW
 Locaters – NSW
 Logan City Council – Qld
 Lorcorgan Surveying – ACT
 Lycopodium Minerals – WA
 Mackay Regional Council – Qld
 MacroVentures – NZ
 Makekadi Mining Services – NSW
 Masters Surveying – NSW
 Matt Monk – NSW
 Maven Associates – NZ
 McConnell Dowell – NSW, Qld
 McKenzie & Co. Consultants – NZ
 McMullen Nolan Group – WA
 Michael Crane – Qld
 Michael Wolf – Qld
 Michel Group Services – Qld
 Middlemount South – Foxleigh Coal Mine – Qld
 Millar Merrigan – Vic
 Milward Finlay Lobb – NZ

Mine Earth – WA
 Moreton Bay Regional Council – Qld
 Mott MacDonald – NSW, Vic
 MPS Surveyors – NSW
 Mueller Surveying – NSW
 Muru Survey – NSW
 MVR Surveys – Vic
 Nacap – Vic
 NCTIR Alliance – NZ
 Neil Construction – NZ
 Neilly Group – Qld
 Newnham Karl Weir & Partners – NSW
 NGS Engineering Consultants – NZ
 Nicholson Surveying – NZ
 NLEX Corporation – Philippines
 North Projects – NSW
 Northern Corridor Improvements – NZ
 Northern Hills Drafting – Qld
 Northrop Engineers – NSW
 Northwest Surveys – NSW
 NTCADS – Tas
 OceanaGold Corporation – NZ
 Olsen Engineering – WA
 Onsite Surveying – NSW
 Onyx Projects – Qld
 Origin Engineering Surveys – Qld
 Orion Consulting Engineers – NSW
 Orogen – NZ
 Owen Consulting – Qld
 Pacific Survey – NSW
 Palmer Bruyn Surveys – NSW
 Paul Jacuba – Qld
 Paveset Australia – Qld
 PEAKURBAN – Qld
 Pensar – Qld
 Phronis Consulting – Qld
 Pilbara Surveys – WA
 Pilbrow Surveying – NZ
 Pirie Consultants – NZ
 PLANIT Engineering – NSW
 Playa Del Carmen – Qld
 PLC Consulting – Vic
 Pomelo Consulting – NSW
 Port Macquarie-Hastings Council – NSW
 Port Nelson – NZ
 Bloxam Burnett and Olliver
 Praxis Engineering – NSW
 Precinct Land Consultants – Vic
 Precise Positioning Solutions – Qld
 Precise Spatial Services – NSW
 Precise Surveys – WA
 Premise Group Services – Qld
 Prime Metro BMD Corporation – Philippines
 Pritchard Francis – WA
 Project Surveys – NZ
 Promontory – NZ
 PT Kaltim Industrial Estate – Indonesia
 PT Pama Persada Nusantara – Indonesia
 PT Semen Gresik Rambang Tbk – Indonesia
 Pulver Cooper and Blackley – NSW
 Pyrenees Shire Council – Vic
 Quadrant – NZ
 Quattro Engineering – NZ
 Queensland-Palering Regional Council – NSW
 Queensland Survey Drafting – Qld
 RAC Tourism Assets – WA
 RAD Surveying – NZ
 Rail Infrastructure Alliance – Vic
 Raster Co. – NZ
 Ray Surveys – NSW
 Recruitment Engineering Services – Qld
 Red Earth Engineering – Qld
 Red Fox Advisory – Qld
 Redland City Council – Qld
 Regional Management Group – Vic
 Reburn and Bryant – NZ
 Rider Levett Bucknall – Qld
 Rio Tinto – WA
 Road and Civil Surveys – NSW
 Road Construction Surveys – Vic
 Road Resources – Qld
 Roads and Maritime Services – NSW
 Roy Hill Holdings – WA
 RPS – NZ
 RPS – Qld
 S R Surveys – Qld
 Salini Impregilo (NRW JV) – WA
 Sapphire Surveys – WA
 Sasan Safari – Vic
 Saunders Havill Group – Qld
 Schick Civil Construction – NZ
 SCP Consulting – NSW
 Sea Spirit Lifestyle Communities – NSW
 Seymour Whyte – NSW, Qld
 Shadforth's Civil – Qld
 Shane Stratton Surveying – NZ
 Simmons Civil – NSW
 Singleton Survey Services – NSW
 SMEC – NSW, Qld, Vic
 South32 GEMCO – Qld
 Southern Horizons Survey – NZ
 Spiire – Vic
 SportEng – Vic
 Statiker – NSW
 Sterling and Wilson Solar Australia – NSW
 Stevenson Surveys – Qld
 Storm Surveying – Vic
 STP Consultants – Qld
 Stuart O'Rourke – Vic
 Summer Consultants – NZ
 Sunrise Surveying – Qld
 Sunshine Coast Drafting Office – Qld
 Superior Surveys – WA
 Survey 1st Group – WA
 Survey 3D – Qld
 Survey Dynamics – WA
 Survey Group – Qld, WA
 Survey Unlimited – NZ
 Survey Waitaki – NZ

Surveya – NSW
 Surveying Solutions Australia – Qld
 Surveying the Bay – NZ
 Surveyors @ Work – Qld
 Survus – NZ
 Sustainable Energy Network Solutions – NSW
 SYJ Consulting Engineers – Qld
 TABEC – WA
 TAFE Queensland – Qld
 Taylor Miller Consulting – Vic
 Taylors DS – Vic
 Technical Spatial – NZ
 Terra Group – NZ
 Terralinks – NSW
 Terramar – NZ
 Territory Project Management – NT
 Tetra Tech Proteus – WA
 The Surveying Company – NZ
 Tipec – Qld
 Tonkin and Taylor Group – NZ
 Toowoomba Regional Council – Qld
 Transport for NSW – Grafton, Parkes, Wollongong
 Trig Consultants – NZ
 Tripp Andrews Surveyors – NZ
 TSS Total Surveying Solutions – NSW
 Tuff Turf – Vic
 Turnbull Engineering – NSW
 Utility Mapping (Aust) – Vic
 Veris Australia – NSW, Qld, Vic, WA
 VFT Engineering Surveyors – NSW
 Virtue Construction Surveying – Vic
 Vision Surveys – Qld
 V-Mark Survey – NSW
 Vuksich and Borich – Fiji
 Wagga Wagga City Council – NSW
 Wallbridge Gilbert Aztec – SA
 Water Technology – Qld
 Waverley Council – NSW
 Webb McKeown Associates – NSW
 Webuild – NSW
 Westera Partners – Qld
 Welsh Geomatics – Qld
 Wharehine Group – NZ
 Whitesunday Regional Council – Qld
 Willow and Sparrow – NSW
 WMG Engineering Surveyors – NSW
 WML Consultants – WA
 Wood & Partners – NZ
 Wood Australia – Vic
 Woodward Land and Civil – Vic
 Worley Services – WA
 WorleyParsons – Qld, WA
 WSP Australia – Qld
 WW Surveys – Qld
 Xeros Piccolo Consulting Engineers – NSW
 Xroads – Qld
 Yeltour Enterprises – Qld
 Zone 50 Engineering Surveys – WA

12d Synergy

AECOM – Australia
 Arcadis – Australia
 ARTC – Australia
 Beveridge Williams – Vic
 BG & E – Australia
 Byrne Consultants – NT, Qld
 Cameron Gibson and Wells – NZ
 Candor3 – NZ
 Cardno – Australia, NZ
 Cato Bolam Consultants – NZ
 CCL 2015 – NZ
 CFK Surveys – NSW
 City of Gold Coast – Qld
 City of Newcastle – NSW
 Covey Associates – Australia
 CPB Contractors – Australia
 Creo Consultants – Vic
 Cuttriss Consultants – NZ
 Damwater Engineering – NZ
 Davis Oglivie & Partners – NZ
 De Nada Surveys – WA
 Eliot Sinclair & Partners – NZ
 ESO Surveyors – Australia
 Flat Out Surveying – Vic
 FT Consultants – NZ
 Fulcrum CAD – NZ
 Increva – WA
 Jacobs – Australia
 John Holland – Australia
 Kelley Covey Group – NSW
 Land Matters – NZ
 LandLink – NZ
 Mott MacDonald – Australia
 MTL – NZ
 McKenzie & Co. Consultants – NZ
 Mt Messenger Alliance – NZ
 NOMA Consulting – Australia
 Orion Consulting – Australia
 Orogen – NZ
 Paterson Pitts Limited Partnership – NZ
 Pirithai – NZ
 Precinct Land Consultants – Vic
 Projex Partners – Qld
 Rail Infrastructure Consultants – NZ
 Resource Design and Management – NSW
 Riley Consultants – NZ
 RPC – NZ
 SMEC – Australia
 Sunrise Surveying – Qld
 Surveying Services – NZ
 Surveyors @ Work – Qld
 Taylor Patrick – NZ
 Terra Group – NZ
 Terramar – NZ
 Tierra West – USA
 Turnbull Engineering – NSW
 Veris – Australia
 Wood & Partners Consultants – NZ

