

Advantica relieves the stress with CADWorx[®] and CAESAR II[®].

The Challenge: Speeding up deliverables.

As a leading global energy-related infrastructure services company, Advantica has one of the most advanced research and development capabilities in the world. Advantica is dedicated to improving operating performance for the onshore and offshore oil and gas industries. In doing so, it faces the continuous challenge of delivering high-quality results within tight timescales. Recent awards include the Queen's Award for Enterprise (1992 and 2000), the UK's MacRobert Engineering Award (1971, 1989 and 1995), the Prince Philip Award for polymers in the Service of Mankind (1999), a Nova award for efficiency and cost effectiveness in the US construction industry (1997) and the coveted UK Gas Engineer of the Year award (1998, 1999, 2000 and 2002). According to Rob Cameron, Technical Engineer and CAD Manager at Advantica's Edinburgh office, "Our deadlines demand software that will allow us to speed up the production of deliverables to our clients. We've been able to best achieve this goal using COADE software: CAESAR II[®] pipe stress analysis software and CADWorx[®] plant design automation software."

Mandatory Requirement: IGE/TD/12.

The Health and Safety Executive requires comprehensive documentation for all new and existing process plant. Rob Cameron says, "New plant is, of course, already fully documented; however, most of the plant we deal with is not new. Part of our business is to generate the required range of specified documentation and records for existing facilities that often have been heavily modified. We typically get the historical construction drawings, if they exist, and from those we create a pipework model of the original plant. We carry out site surveys and create any records that are required but cannot be sourced, then update the existing pipework model to 'as-built' status." Advantica's Edinburgh office has 10 surveyors and 13 draughtsmen working on 'record recovery' projects at present. Records usually include site layouts/general arrangements, process flow diagrams, pressure systems schematics, environmental drawings and emergency layouts, as well as the normal plant working drawings. When modifying plant, full pipe stress analysis is mandatory. For example, Transco requires all work to be carried out to the

Institute of Gas Engineers code, IGE/TD/12 Pipework Stress Analysis for Gas Industry Plant. For many years, this was achieved using an in-house package, but results were stand-alone and alphanumeric, rather than graphical. The package was difficult to use, permitted a limited user base and eventually reached a development plateau. Transco contracted COADE to integrate the IGE/TD/12 code into an industry standard software package.

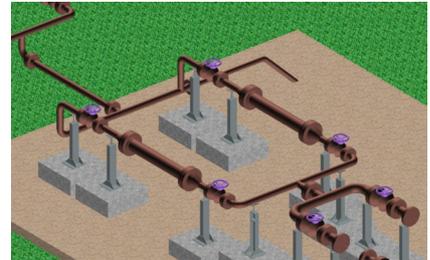
Intelligent 3D plant model.

Rob and his colleagues were tasked to find a 3D plant design application to improve the speed and quality of the team's output. The team determined that bringing the TD/12-compliant pipe stress analysis in-house via CAESAR II could save time, increase quality and retain control. Rob says, "An informed decision requires the end users, design draughtsmen and engineers to have the major say in the product selection. They can test a system's ability to deliver on its promises, and need to feel comfortable that the package produces a fit-for-purpose deliverable, while showing a cost and time benefit to management." He continues, "Our draughtsmen sat and challenged the software so that we were able to evaluate the systems in live situations." After a thorough review of a wide variety of plant design solutions, Advantica purchased, trained on and tested two AutoCAD[®]-based applications. Rob adds, "We needed engineering intelligence built in to the 3D plant model at the right price, so we looked at both CADWorx and AutoPLANT[®]."

The best on the market.

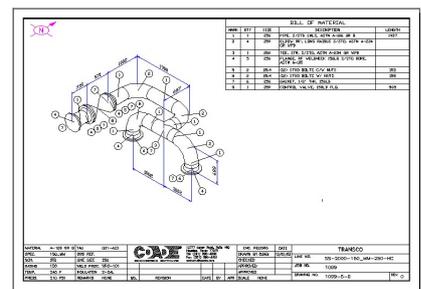
The eventual choice was CADWorx, supplied and supported by Fern Computer Consultancy Limited. Rob recalls, "CADWorx had the functionality we needed. Some AutoCAD-based applications are poorly integrated and this causes problems with the underlying AutoCAD, typically when reconfiguring menus and toolbars. This was not the case with CADWorx, which is well integrated, simple to use but very intuitive, requires very little training and produces functional and accurate CAD pipework models. CADWorx allows you to design in single line, double line or 3D rendered mode, switching between modes as required. It is so easy. In fact, CADWorx has helped our draughtsmen to be productive within half a day, whilst some

Visualisation

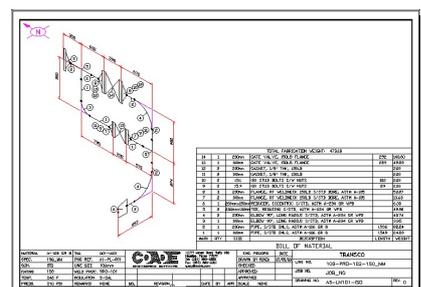


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Automatic fabrication isometrics



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of the other systems required days—or even weeks—of expensive training.” In addition, Fern worked with Advantica and COADE to develop the IGE/TD/12 piping code that is now integrated into CAESAR II. With these benefits, in addition to lower initial cost and support fees, CADWorx has lived up to all of Advantica’s expectations. Rob reports, “We’ve had jobs on which it has helped us immensely. Whilst it is continually being developed to do more, it is the best on the market and is particularly good value for the money. We’ve been able to justify our purchase by showing that a design or modification done in the old 2D fashion would cost more in effort and manpower than by undertaking the job in 3D with a combination of CADWorx and CAESAR II.”

Two days, not two weeks.

The most immediate and lasting benefit of CADWorx and CAESAR II has been efficiency. Rob says, “We were recently asked to carry out some work on an existing plant whose only available records were old ‘as-built’ 2D drawings. We had to do some upgrading work and create a stress analysis model. We spent just two days creating the 3D pipework model and then carried out the stress analysis whereas previously, it would have taken us around two weeks.” He adds, “Operationally, another selling point is the equipment database system. Someone with basic computer skills and ten minutes of experience can add to the database, whereas with many other systems, you need an extensive training course and/or additional external resource.” Integration with CAESAR II has also been beneficial. Rob continues, “... the system produces useable ISOs with only limited editing of dimensions and references required.” CADWorx/PIPE also includes NavisWorks® functionality. Rob points out, “It’s a presentation and communication issue.

You can show someone a bundle of drawings and data sheets and they lose interest. But show them a NavisWorks 3D real time fly-through of the same design, and they’ll understand it instantly.”

Fern: There when needed.

Fern Computer Consultancy has helped considerably in making the solution such a success. According to Rob, “We have a very good relationship with Fern. They understand our industry and our needs. We worked with them and COADE on the development of TD/12 and developed a good relationship through this. They didn’t pester us, but they were there when we needed them.”

More valuable results.

Rob concludes, “Six or seven years ago it was easier to draw in 2D. Generally the industry was terrified of 3D because the cost and time implications were horrendous. I don’t think that’s true any more. Personally, I don’t think it’s any more expensive to design in 3D than in 2D, and, as we have proved with CADWorx, the results are far more valuable throughout the life of the plant. All in all, CADWorx, CAESAR II, Fern and COADE have provided solutions that have made life easier and been financially beneficial to us.”

For further information, visit:

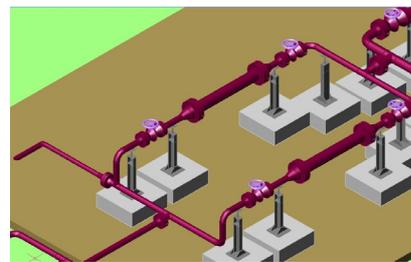
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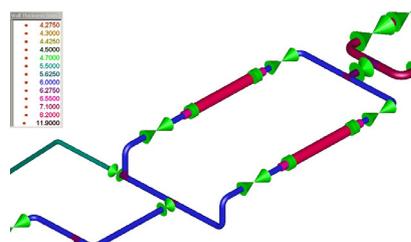
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Productive in half a day



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Analysis



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Fern is a leader in CAD/CAE solutions for the Power, Process and Petrochemical industries. It offers its customers progressive business solutions through powerful technology products and services. Fern distributes COADE engineering software, including CAESAR II, the world’s foremost pipe stress analysis software, in the UK, the Republic of Ireland and Scandinavia.

Fern also distributes MSC engineering analysis and simulation software, including visualNastran, the world’s leading finite element software. Fern highly values its Authorised Dealer status with Autodesk, the world’s leading design software and digital content company.

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