Case Study

Heritage Golf & Country Club - Walsh Draughting Services Ltd

As featured in CAD User Magazine, May / June 2004

The Steel industry is doing rather well out of Sport these days, as the latest fashion for arenas and venues appears to be the erection of extravagant (and I use that word in its nicest sense) roofs supported by large amounts of steel tubing. One such venue is the Heritage Golf and Country Club in Laois, the Republic of Ireland, which has just had over 200 tonnes of steel detailing carried out prior to the club holding the European Senior Tour event next year.

Not on the scale of the grand arches that they are inching over the Olympic Stadium in Athens at the moment, but still impressive enough, the structure is composed of six toblerone trusses, with a clear span of 46 metres, supported on toblerone framed columns - with all of the steelwork composed of tubular members. The structure was detailed by Walsh Draughting Services, working with Engineers Kilgallen and Partners, Architects John M Delaney and Fabricators McDonald & Patterson. The contractors for the project were Corrigeen Construction.

Golf courses are notorious for attracting perverse winds, as any experienced golfer will tell you, and a couple of modifications were made in contravention to normal practices to counter the effects of vicious side winds, (which, incidentally, made the overall design more economic).

Normally the bottom chord of trusses in such a construction is discontinued before the support, and the truss is analysed as a simply supported member. However, by connecting the bottom chord to the inner column leg, the framed column and truss behave in a similar manner to that of a portal frame, reducing the midspan moment considerably, and thus resisting horizontal wind forces.

The connection of the bottom chord to the inner leg incorporated a total of 10 members intersecting at a single node. To accommodate these members, a solution was proposed by Kilgallen and Partners. They suggested the use of a joint connection originating from off-shore technology, whereby large numbers of members intersecting at a node are connected using a large diameter tube, known as a 'can'. The 'can' provides a larger chord and simplifies the fabrication, ensuring that all member forces are transmitted centrally.

The whole project was detailed using StruCad, and Walsh Draughting Services were able to produce all of the drawings required for the model - fabrication, fitting, assembly arrangement and templates. WDS found the format of the StruCad drawings to be very comprehensive, and were particularly impressed with the latest version of StruCad.