projects

Design and construction Technical Project management

Any architect who pushes the boundaries to develop a complex, stylised and demanding design, must then depend on the skills of the main contractor to deliver. That is particularly the case with a project that also incorporates sustainable development provisions. Tony Harrison of MHD Architects acknowledges all of that. Working alongside David Johns Associates on the new Science Centre and Winery complex at Plumpton College near Lewes was, he confirms, one of the main reasons why the job went so well. DJA's willingness to go the extra mile, to be resourceful, to match its own skills base to the architect's designs – while also sourcing and site managing specialist sub-contractors – is what ultimately turned inventive concepts into much lauded material reality.

report **Sally Rowat**

adjoining fields by Agrifactors, an agricultural contractor from Heathfield (in line with the College policy of supporting local industries). DJA implemented all other aspects of this government-funded alternative energy source.

Plumpton is the only College anywhere in the world to offer full-time wine studies courses in the English language. Its degree programmes are affiliated to the University of Brighton, and also to the Eastern Institute of Technology in Hawkes Bay, New Zealand.

"With the outstanding Science Centre that David Johns Associates has constructed for us, our viticulture courses are attracting applications from South Africa and Korea, from students throughout Europe and even from Hong Kong," says Chris Foss, Head of Wine Studies. "We welcome a very broad cross section of students: the owner of Leventhorpe, the most northerly UK vineyard in North Yorkshire, came to train here. And we're delighted that graduands are taking up other very prestigious careers within the wine industry worldwide."

"Our forté is understanding what clients want out of a building, then putting that into reality."

What does David Davis believe is his team's single greatest achievement at Plumpton College? "Getting inside the clients' mindsets, so we understand what they really want out of the building – how do they imagine it will look – and then putting that into reality," he says. "That is our forté – living and breathing the job. Above all, we want to get it right first time, and to do so we have to understand the clients' expectations and factor that into how we interpret the architect's design."

Tony Harrison of MHD Architects created a complex, stylised design for the Science Centre at Plumpton College, and relied on the skills of DJA to interpret his concepts.

Clockwise from top left: The steel framework was manufactured by NB Structures; sedum plants on the green roof; the Plumpton estate produces 45,000 bottles of wine each year, from grapes in its own vineyards; Chris Foss, Head of Wine Studies at Plumpton College.

Project team

Client: **Plumpton College**
Contract value: **£640K**
Contract duration: **26 weeks**
Architect: **Tony Harrison, MHD Architects**
Structural Engineer: **RID Struthers**
M & E Engineer: **John Packer Associates**

David Johns Associates Limited
Langtye
Langtye Lane
Ripe
East Sussex BN8 6AY
Telephone: **01323 811116**
Email: **contractors@davidjohns.co.uk**

For further information about this and other projects, please visit the David Johns Associates website: **www.davidjohns.co.uk**

Plumpton College, Lewes, East Sussex

project dossier

December 2007

CREST OF A WAVE

The pioneering Science Centre and Winery at Plumpton College in East Sussex – officially opened by Master of Wine, Jancis Robinson, in June 2007 – is the most modern facility of its kind in Britain. It also claims to be taking on the Europeans at their own game.

Back in 1996, Plumpton College introduced a Higher National Diploma in Wine Studies. This was the start of a ground-breaking journey to move centre stage in world viticulture and oenology education. Over the next decade – as degree courses were offered alongside the HND – equally dynamic buildings were needed, to attract an international student base.

MHD Architects, a Sussex-based firm sympathetic to the rural site, won the two-stage commission. First, they designed the fully functioning Winery that was completed in August 2005. With a 50-tonne capacity, it is enabling the College to increase production of its own wines, from grapes grown in vineyards on the Plumpton estate, to 45,000 bottles each year.

The final stage was to build the Science Centre, providing an educational and public link to the Winery facility. The initial brief specified the need for teaching facilities that combine traditional classrooms with laboratory and flexible seminar areas. Offices ►

were required, a reception area, and a public 'events room'. There was also the requirement to create an impressive global resource that could be used to promote and develop the UK wine industry, hosting meetings and conferences.

Given the green credentials of the College, the use of sustainable materials was an integral part of the project. This was especially important at a time when the design and construction industries must respond urgently to the threat of climate change.

Plumpton College lies within the potential South Downs Conservation Area. The site itself is designated an area of outstanding natural beauty. Architect Tony Harrison explains: "The object of the design was to create low-lying public and administration areas that were so visually dynamic that they would help shield and articulate the larger and more industrial mass of the Winery backdrop. Given the local environment, we placed emphasis on the horizontal, introducing an undulating 'green' roof that responds to the natural beauty of the gently rolling downland site."

David Johns Associates was appointed as main contractor for stage two – "the difficult bit," according to the architect. "It was a very complicated building, with intricate detailing, and they did it exceptionally well."

"DJA was appointed as main contractor for the difficult bit."

The structure was constructed around a steel frame, which was then clad with brickwork, timber and large areas of patent glazing. The wave roof, which is such a striking feature of the Science Centre, was formed from steel structural beams, hot rolled to form the subtle curves, and in-filled with timber joists. This was topped with layers of plywood and completed with an insulated single ply roofing membrane. The curved structure was then covered with sedum vegetation blankets, to complete the 'green' roofs and reflect the rolling South Downs.

"DJA Director, David Davis, and his team very successfully sourced and then co-ordinated a range of individual special sub-contractors," confirms Tony Harrison. The manufacture and erection of the steel framework was carried out by NB Structures Limited. This involved complex curved steelwork, which had to be true to the nearest millimetre. One blip at that stage and everything else would have been out of alignment. It was the same with the aluminium and curtain walling systems: the architect designed and specified it, then DJA sourced the best company for the work – Feature Architectural Fabrications.

"The young site supervisor from David Johns, Karl Banford, was brilliant," says Tony Harrison. "One of the main reasons the project ran so successfully was that he clearly enjoyed the challenge. His enthusiasm carried over to the DJA team of in-house carpenters and joiners, which – as a carpenter himself – Karl led from the front. In particular, the waveform roof over the events room really was an extremely difficult task to construct. For this, they deserve all the praise they can get for producing what is an extraordinarily complex piece of geometry."

"One of the main reasons the project ran so successfully was that he clearly enjoyed the challenge."

This was the first time David Johns Associates had worked with MHD Architects. And for David Davis of DJA, what was most important at Plumpton's Science Centre was not just the finished quality of the job, but the ability to meet client requirements and go beyond expectations.

"Right at the start, even before we got on site, Tony explained how he wanted to create the 'wow' factor with this building," David Davis explains. "Essentially, our skills needed to successfully execute his concepts. There is an art in reading an architect's drawings and delivering on the designs – not least because there's always the risk that when it all comes together, it might not look as the client wants."

"We were the interpreters, breathing life into the designs."

There was a tight turnaround because the College expanded the works quite dramatically while DJA was on site. Adaptability and flexibility were key. "There were the almost inevitable changes ►

to spec once the viticulture team got inside the watertight structure and started to see how the space would work for them," records David Davis. "At first and second fixings stage, those who would actually be working in the building needed to assess what should be relocated to make the working environment most efficient, for staff and students alike."

From MHD Architect's very first designs for the Science Centre, the internal space has evolved. Two of the original three classrooms were changed into a lecture theatre and a wine tasting room. The third classroom was fitted out as a teaching laboratory. On the top floor are two flexible seminar rooms. And the events room has now been re-named The Vintners' Room, reflecting the ongoing sponsorship of The Vintners' Company.

The architect, Tony Harrison, explained that: "The College was extremely keen to move into the classrooms, even before the rest of the building was complete. This could have caused problems and may have met with resistance from the contractor. But DJA freely agreed to consume the additional works and sequencing in order to accommodate the needs of the College."

Both the architects and contractor agree that they have gained valuable experience from this project. Together, they have come to terms with new and innovative forms of construction and worked hard to realise Plumpton's green agenda.

"That was why it was really nice to work with DJA," says Tony Harrison. "We quickly realised that they are very willing to explore different forms of construction and come up with solutions to new problems." Again, DJA had to go out to tender for a specialist supplier to lay the sedum. A sedum roof benefits both those inside the building and the wider environment: there is reduced heat loss from the building in winter, and a reduction of internal building temperature in summer months.

Sustainability has also been achieved with the introduction of a ground source heat pump system. Slinky coils were laid in the ►

Page 1: Steel structural beams, hot rolled to form subtle curves, form the waveform roof that is such a visually dynamic feature of the Science Centre.

Page 2: David Johns Associates successfully sourced and co–ordinated specialist sub–contractors for the complicated construction.

Above: The internal space evolved, with two of the three classrooms changed into a lecture theatre and wine tasting room.

Above right: The structure was constructed around a steel frame and then clad with brickwork, timber and large areas of patent glazing.

Right: The roof over the events room was an extraordinarily complex piece of geometry for the DJA carpenters and joiners.