VT Flagship Training, under the umbrella of parent company VT Education and Skills, has a unique partnering agreement with the Royal Navy to deliver bespoke training solutions, facilities management and construction services. Part of its remit is HMS Collingwood at Fareham, Hampshire, close to Portsmouth's historic naval dockyard, the fourth 'vessel' to bear the name since the Battle of Trafalgar and is the land based lead establishment of the Maritime Warfare School and the largest naval training organisation in Western Europe.

The closure of HMS Dryad led to some training elements being relocated to HMS Collingwood: as prime contractor for what was named 'Project Warspite' VT Flagship Training's challenge was to construct a word class training facility which would include a state of the art catering facility to feed up to 1200 people per mealtime 365 days of the year. The resultant Howe Galley achieved a Defence Estates DREAM (Defence Related Environmental Assessment Methodology) rating of 'excellent' and was constructed to support the new Ministry of Defence 'Pay As You Dine' initiative where personnel benefit from a wider range of catering options, rather than paying a set monthly food charge.

The new building opened in May 2008 to provide dining, retail and leisure areas for the base. It was imperative that the new development addressed environmental and sustainable features in terms of design and construction. Detailed tests and analysis were undertaken by Foodservice Consultants Society International (FCSI) consultants, CDIS-KARM under the aegis of David C Clarke in order to specify kitchen equipment for the new facility that would meet the necessary criteria. Catering equipment had to be state of the art, energy efficient units with all requirements assessed by Clarke on a 'cradle to grave' principle, which covered value for money, carbon emissions as well as providing a comfortable environment for operators.

Commander Bob White of Royal Naval Estate Organisation was in charge of the construction: RNEO has a strong partnering relationship with VT Flagship, established six years ago under a Prime

SETTING THE GREEN STANDARD

What is claimed to be the most sustainable catering operation in the UK is up and running at the home of the Royal Navy in Portsmouth. Kathy Bowry reports from the state of the art training facility HMS Collingwood.

Contracting Enabling Arrangement to provide construction services. VT Flagship had responsibility for the design, construction and management of Howe Galley and together with RNEO, to select the design and construction supply chain members.

"The brief from the Defence Logistics Organisation was for a sustainable kitchen," says Kevin Ayton, VT Flagship Training's Catering and Pay As You Dine Business Development Manager. "The Navy is committed to sustainability and any new build has to conform to BREEAM. When the new building was finished, we basically had an empty box we had to fill according to the guidelines in the Joint Services Publication for planning kitchens – and within a budget of £1.4 million."

Dave Clarke takes up the story: "You cannot monitor and make savings if you cannot measure the performance. To enable the energy and water used to be measured against the number of meals produced, the kitchen electrical, gas and water services have been separately metered. The benchmark published by Chartered Institution of Building Services Engineers (CIBSE) for this style of facility is 3.9kWh per meal for the building, broken down as 2.5kWh of fossil fuel and 1.4kWh of electricity. The estimated benchmark for the kitchen and servery is 2.3kWh broken down as 1.5kWh of fossil fuel and 0.8kWh of electricity." Armed with this information Clarke set about specifying the most energy efficient kit he could find.

The Howe Galley is the first Government building with 'demand-based ventilation' in the UK. The system, supplied by Horton, adjusts to the volume of cooking, giving a 40 per cent energy saving on a traditional system. Lighting was also taken into consideration: innovative use of energy efficient lighting provided by Gifford UK combined with maximised natural lighting meant we got the very best value. Sustainability and value for money assessments went hand in hand and money was spent where there was a clear, discernable benefit.

Two 20 x grid and two 10 x grid Eloma combination ovens were installed to significantly reduce the energy used by up to 46 per cent compared with conventional cooking methods. They incorporate a high >

performance heat exchanger which shows a further saving of up to 16 per cent on energy and as much as 42 per cent on water when compared to similar products.
A bank of six Falcon deep fat fryers incorporate the latest heat exchangers, pre-mix burners and filtration systems, providing a healthier working environment and using less energy with a higher output and faster recovery time. In addition the fryers use up to 38 per cent less oil. Chips cooked in the fryer have 25 per cent less fat overall and up to 40 [per cent less saturated fat.
A Glycol secondary refrigeration system by Williams Refrigeration runs a number of different appliances, chilled areas and cold rooms on one system. It reduces the primary refrigeration gas used within a commercial kitchen by up to 72 per cent which brings with it the obvious benefits for the environment. "It also reduces energy usage by up to 25 per cent," says Clarke.
With 1200 covers per session, the dishwasher could have been a major point of failure and a 'failsafe' system incorporating two dishwashers was originally budgeted for. "However, evidential proof of performance was provided by Meiko UK the manufacturer working with Dave Clarke and we decided what we really needed was not necessarily two dishwashers but one very good one backed up by a good support contract," says Commander White. "We saved 30 sq metres and the cost of one machine – a good example of reasoned, well researched value engineering." The machine that went in was Meiko's fully specified K-Tronic rack transport system with heat pump, CSS Top chemical savings systems along with a pass through DV270.2 utensil washer.
Meiko also supplied the groundbreaking Microvac organic food waste disposal system, which takes waste from the kitchen and dishwash areas, reduces it to liquid pulp and transports it into a large, sealed storage vessel for collection by truck. According to Clarke in through-life costing, the system pays for itself in six and a half years by saving on collection costs and landfill tax. "The solution had to be sustainable, from an environmental perspective, easy to operate from the user's perspective, and cost effective from the owner's perspective," says Clarke.
Bagging kitchen waste and sending it to landfill was never an option, says Ayton. "Looking at it practically, and environmentally, in five to 10 years Hampshire will be stuffed. As well as coping with local demands, it is taking rubbish in from London and cannot go on doing that indefinitely. Plus there are huge cost implications to sending waste to landfill – charges are rocketing and will continue to do so. The new building presented a great opportunity to address the problems of disposing of our food waste."
Now food waste from HMS Collingwood is collected by waste contractor Veiola and goes for composting in the Southampton area and the waste from Raleigh is sent for biogas production in North Devon. So impressed is the DLO with the system, they also decreed that the newly built facility at HMS Raleigh in Devon should have MicroVac fitted retrospectively in place of the originally specified wet waste dewatering unit.
"CDIS – KARM firmly believes that if the food waste generated within a catering facility exceeds 400 litres per week and does not exceed 180 litres per hour from any one of four collection points then the MicroVac system should be considered with the life cycle costs being analysed from an economic, environmental and social viewpoint. This system, when used to transport food waste from the point of generation to the point of storage, is the most hygienic and sustainable solution available within the catering industry today," says Clarke.
Knee operated taps from Mechline with automatic shut off devices have been used on all hand wash basins and the company's Aquajet low flow energy efficient pre-rinse spray units have been installed on vegetable preparation, pot wash and wash up sinks. Clarke also specified Mechline's eco friendly GreasePak biotechnology solution to treat light fat, oil and grease that is washed down the drains rather than a mechanical grease trap. The system is installed discretely on the kitchen wall.
It doses the drains at three locations and is compliant with Part H of the Building Regulations as a standalone grease removal system.

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