ROLAND HILL

Zero Carbon Modular Building

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Zero Carbon School Building Using Off-Site Modular Building Technology

Haydon Bridge is charming village on the South Tyne River. It's a strong farming community on the edge of the Northumberland National Park and just 4 miles from the world heritage site of Hadrian's Wall. Haydon Bridge High School has recently taken delivery of the first zero carbon modular school building in the UK which was manufactured by North of England -based Roland Hill Ltd Limited.

Back in 2009, Northumberland County Council was selected to test run an ambitious national project to deliver zero carbon school buildings by 2016. Following a competitive bid process against 38 local authorities around the UK, Haydon Bridge High School was awarded £1million to create a new building that would minimise the school's overall carbon footprint.

A classroom with its own chicken coup

Year 12 land-based agriculture students at the school were closely involved in creating the specification of the building which will be used by around 60 students and 4 members of staff. The building comprises of a 65 square metre classroom area, plus a 90 square metre science lab. The classroom area also includes a chicken coup and incubator to help the students learn directly about the rearing and care of animals.

The result is a landmark building which not only showcases renewable energy but provides a state- of-the-art environment in which students can learn about it. Just outside there is an area where with polytunnels, a greenhouse and raised beds where students can grow their own produce.

"...the attention to detail is fabulous throughout..."

Jill Collinson is the Capital Projects Officer at Northumberland County Council, responsible for Carbon Management Procurement. She explains: "Roland Hill Ltd introduced us to the idea of a new method of construction where the building could be manufactured off-site and then dropped into place at the last minute.

It's zero carbon, highly sustainable and finished to a very high specification. The attention to detail is fabulous throughout and the fact that it was manufactured off-site meant the school didn't have months of disruptive construction going on during term time.

"We definitely see this method of construction as the way forward for school buildings in the future. Overall it costs a little more than the familiar mobile classroom. But mobile classrooms only have planning permission for 4 years while the Roland Hill Ltd building is granted full planning permission and will last indefinitely. This makes it a very cost-effective option and we'd very much like to see it used again."

"...the addition of the minimal renewable technologies gives the building an A+ rating which shows the building to be carbon negative, that's to say the building will generate more power than it uses."

Roland Hill Ltd' unique construction method begins with what they call a 'fabric first' approach. Simon Astill, Consultant for Roland Hill Ltd explains: "Right from the start the Haydon Bridge brief called for a zero carbon building. Our 'fabric first' approach means starting with the choice of insulation materials to be used. Then we selected the most efficient heating, lighting and control systems to suit the needs of the building, the students and staff who would be using it. Finally we added renewable technologies to the building, which in this case was solar thermal & PV and a wind turbine. In fact the addition of these gives the building an A+ energy rating which shows the building to be carbon negative, that's to say the building will generate more power than it uses."

The off-site modular construction method used by Roland Hill Ltd is fast, energy efficient, and highly cost-effective. The buildings can be manufactured to virtually any design or size. Roland Hill Ltd has created projects in luxury private homes, commercial buildings and social housing.

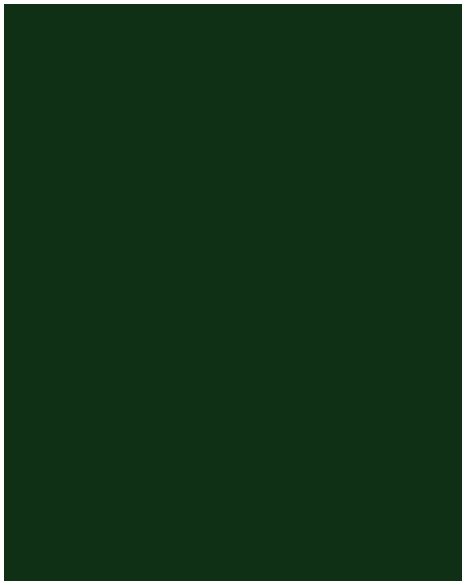
"From the moment the manufactured sections arrived on-site, we had a fully watertight building within 10 hours."

Simon added: “When people think of additional school buildings, the ‘portacabin’ style springs to mind. However we must stress that this not what has been created here. This is a purpose built, permanent building with full planning permission. The other key point to make is that our efficient construction method provides a high quality zero carbon building, manufactured, installed and finished in 21 weeks.

The snow at the end of last year caused a slight delay, but much less than would have been created by conventional building methods. From the moment the manufactured sections arrived on-site, we had a fully watertight building within 10 hours.”

“Because this was a new concept for a school building we had to make a leap of faith...”

This is the first building of its type in the North of England. This meant that making the decision to use Roland Hill Ltd was something of a leap of faith for Northumberland County Council and for the principal contractor on the project GB Solutions Ltd.



Bill Law, Framework Director from GB Solutions Ltd. has overall responsibility for ensuring council buildings are delivered on time and on budget. He explains: “Because this was a new concept for a school building, we had to make a leap of faith that Roland Hill Ltd could deliver. When we met with Chris Hill and Simon Astill from the company we were impressed by their technical knowledge, confidence and passion. They clearly understood sustainability and the need for a zero carbon outcome. We’re delighted with the end result – the building is simply superb and it has exceeded everyone’s expectations.

“For someone in my role, making sure projects arecompleted on time is essential. The key thing about this

building was the speed – the installation was so quick. I see massive potential for this construction method and look forward to working with Roland Hill Ltd on other projects.”

Throughout the design and manufacturing process, the project was regularly checked for compliance with building regulations through the Local Authority Building Control (LABC) Partner Authority Scheme. Robert Doran, Principal Building Control Surveyor for Allerdale Borough Council was involved in some of the design aspects of the building and spent much of his time at Roland Hill Ltd’ factory in Aspatria, Cumbria.

He commented: “My role was to check the building for compliance with building regulations which involved regular inspections for quality control and consistency. Because this method of manufacturing is done inside a controlled factory unit, consistency is much easier to achieve. In addition there’s no degradation of materials due to bad weather. All in all this is a very efficient construction method which has resulted in a high quality building that’s fully compliant with all building regulations. Due to the success of the partnership we had no hesitation in commending it in the current Northern Region Awards designed to recognise an on going relationship between key members in the company and Local Authority Building Control.”

About Roland Hill Ltd

Roland Hill Ltd is one of the UK's leading firms in the manufacture of off-site modular building technology. With offices in Cumbria, the company provides buildings, heating systems, thermal insulation products and doors. Clients include private customer new build projects, public sector buildings and commercial projects. All products comply with building regulations.

Roland Hill Ltd is committed to offering innovative technologies that provide a low carbon footprint for energy efficiency and sustainable solutions.

Contact us:

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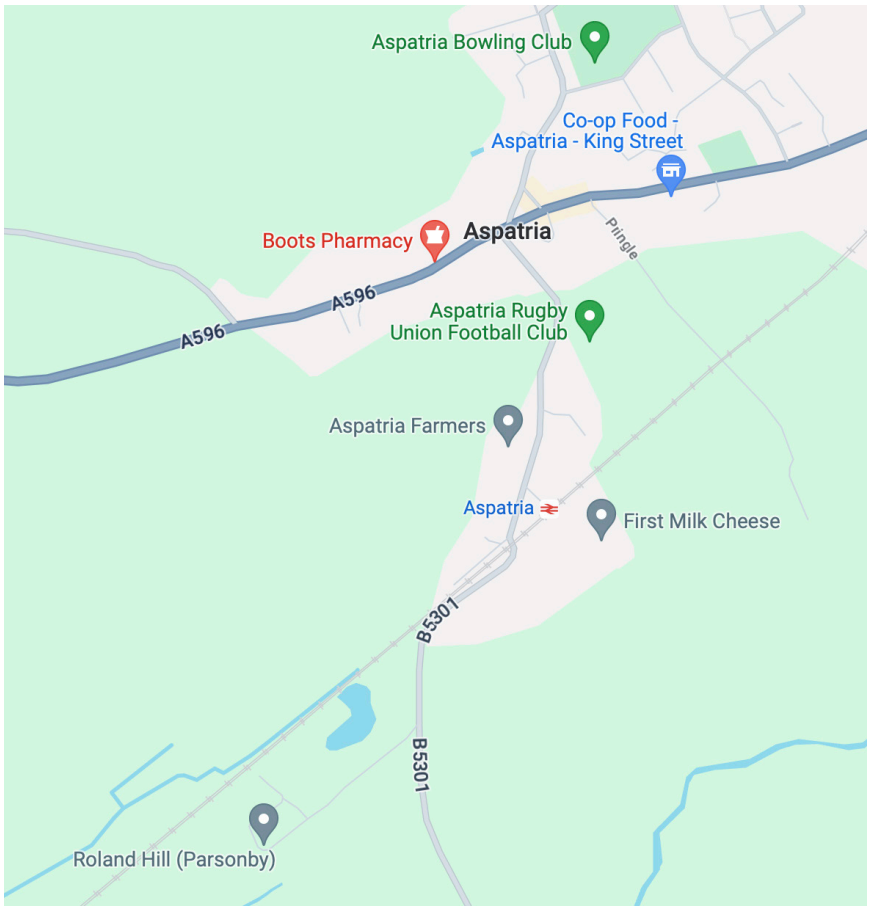
More information on Roland Hill Ltd can be found at **www.rolandhills.co.uk**



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