



## Schools & Commercial

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# Building for the Next Generation

## Environmental Policy Statement

Cabinco Ltd. creates a wide variety of sustainable timber buildings which meet full UK Building Regulations

Cabinco timber buildings are all environmentally sound structures, supplied with low E glass and clad with Siberian Larch (alternatives available) which does not require preservative treatment as it is naturally weather resilient.

We are proud that our buildings have won a number of prestigious environmental awards.

Cabinco Ltd. holds both FSC and PEFC Chain of Custody Certification, and our buildings can be specified against BREEAM standards.

The company recognises its responsibility for the effects its operations have on both the local and global environment and is committed to minimising harmful effects.

The business uses timber sourced from Northern Europe for its products.

The building specification we agree with our clients has a major influence upon the building's life-time energy use.

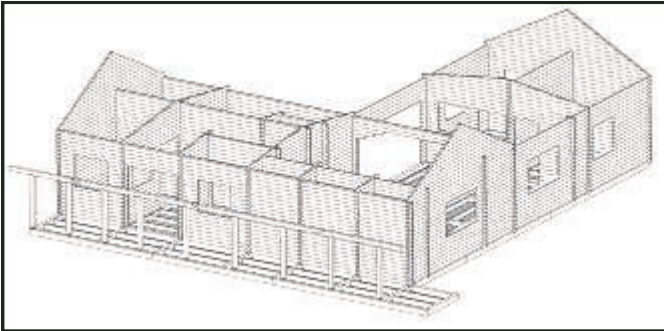
Cabinco Ltd. aims to measure the impact on the environment of these and other activities, and seeks continuing improvement.

This will be achieved by maintaining an Action Plan which will be reviewed and updated annually to take account of developments within the business and changes in both legislation and technology. In particular we will:

- ◆ Continue to evaluate the sources and types of timber from which our products are made.
- ◆ Evaluate each operation and ensure it is as efficient as possible to minimise energy consumption and waste.
- ◆ Enable clients to assess the impact of building specification upon energy use.
- ◆ Actively promote recycling, both internally and amongst our customers and suppliers.
- ◆ Minimise our carbon impact by selection of electrically efficient equipment and through careful selection of means of transportation, commensurate with operational requirements.
- ◆ Meet or exceed the requirements of all the environmental legislation that relates to the business.



# Building for the Next Generation



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# Building for the Next Generation



Educational Buildings  
Visitors Centres  
School Shelters  
Home Offices  
Bespoke Buildings

# Building for the Next Generation

## Introduction

Cabinco Ltd is a well established company which, for many years, has been supplying and constructing sustainable timber buildings based around a structural shell of machined profile interlocking logs: MPL.

Our client base lies predominantly in the Commercial and Education sectors. We provide high quality, sustainable buildings, varying in size from 20m<sup>2</sup> garden offices, to the 600m<sup>2</sup> Bexwyke Lodge for Manchester Grammar School. Our client list includes the University of Dundee, Forest Enterprise, RSPB, Severn Trent Water, LEAs throughout the UK, and a number of private clients who appreciate quality.

Buildings for all of these clients have been designed, with them, to meet their specific requirements. This experience has given Cabinco a broad knowledge base: ensuring that you get a building which is designed specifically for your facility and not just the "best fit" from a pre-determined modular system.

A Sustainable  
Alternative to  
Modular  
Construction



# Building for the Next Generation



Design

Construct

Complete

# Building for the Next Generation

## Our Buildings

Our buildings are designed to meet or exceed all current UK Building Control legislation, including a high end BREEAM specification if required.

Cabinco timber buildings are all based around a structural MPL\* shell which is then insulated externally, and clad in Siberian Larch, although we can incorporate a wide range of alternatives to suit client requirements.

*\* See the technical section for full details.*

Each building is individually designed, and all components are machined and cut off-site. The MPL system facilitates rapid erection, optimises accuracy, and minimises the use of heavy plant. A "spin-off" benefit of our system is the ability to work in relatively confined areas without having to lift heavy panels etc over existing buildings.

Our buildings can sit on a variety of foundations, including screw-piles: which minimise time on site, and further reduce the need for expensive heavy plant. Typically, screw pile foundations for an average nursery unit would require no more than a 2.5 tonne mini excavator to drive them. This has a significant impact on CO<sub>2</sub> emissions generated on-site.

Each building is individually designed, **with you**, based on your specific requirements: starting with the floor plan to ensure the optimum layout for you.

We can provide what Michael Gove calls a "flat pack" solution without compromising specification, performance, space or your learning environment.



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Cost Saving

Energy Saving

Labour Saving

Planet Saving



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## Sustainability

Sustainability is high on the agenda: all timber components are sourced from well managed forests as standard, and can be supplied FSC or PEFC certified if required. Cabinco Ltd carry both PEFC and FSC Chain of Custody Certification.

Our standard specification uses Siberian Larch for the external cladding; a species which is naturally weather resistant, and does not require ongoing preservative treatment: it can be allowed to gradually "weather" to an attractive silver-grey hue without any detriment to performance. This reduces maintenance costs and negates use of preservatives on site. An additional benefit of Cabinco Larch Cladding is that the edges are designed to meet flush and therefore provide a contemporary, "streamlined" finish; in keeping with modern premises. There are a range of finishes available including rustic overlap sawn boarding or an external cladding of your choice.

Our buildings are extremely well insulated as standard using high quality, proprietary products. Sustainability and "eco" credentials can be further enhanced by selection from a wide variety of sustainable options.

## Your Door to Sustainable Buildings

Our standard roofing material is Metrotile: a bitumen coated steel tile, which has a 40 year manufacturer's guarantee. However, we are able to supply a variety of other roofing products including sedum or wildflower roofing systems. Green roofing looks stunning, improves air quality and assists insulation, which further reduces energy use and CO<sub>2</sub> emissions. Other alternatives include slate, tiles, cedar shingles and reclaimed or recycled materials.

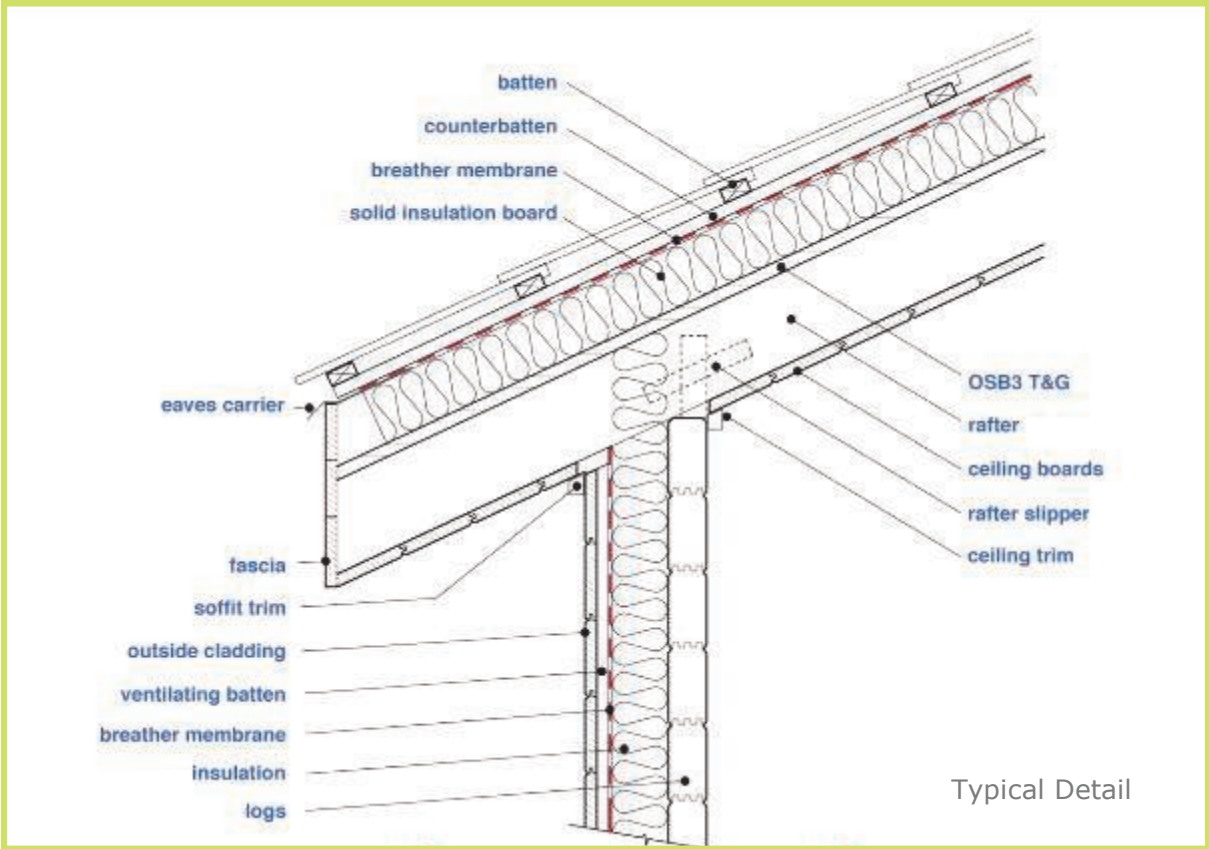
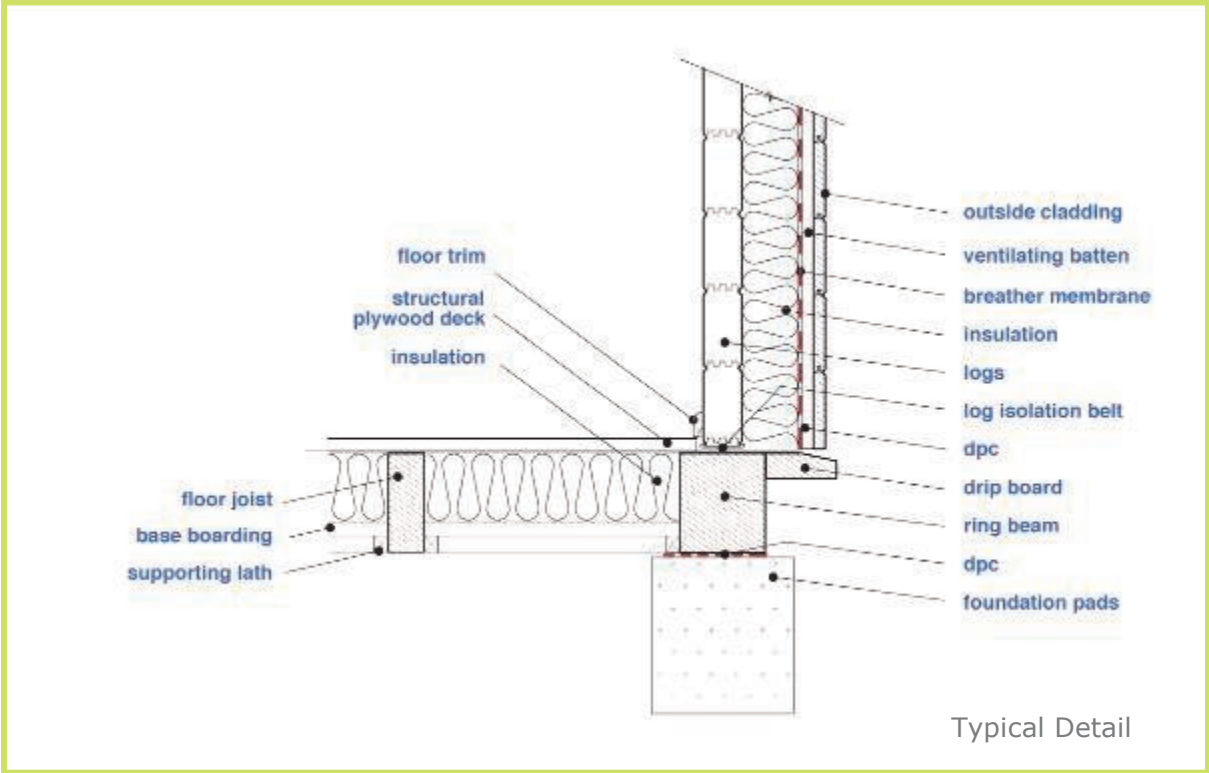
Timber windows and doors are all factory pre-finished to a very high standard to reduce maintenance costs. They are all double glazed as standard with toughened or laminated glass used throughout. Options exist for "B" rated energy windows which are "Secure by Design".

On past constructions Cabinco buildings have passed pressure tests with as little as 5m<sup>3</sup>/hr/m<sup>2</sup>@50 Pa. lost from the finished buildings. However we are continually striving to improve our buildings' performance and believe that even lower figures will be readily achievable.

Roof lights and sun-tunnels can be used to improve natural light in larger rooms and corridors, which can further reduce your energy use and your carbon footprint.

A wide selection of sustainable options is available including ground source heat pumps and rainwater harvesting.

# Building for the Next Generation



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## Technical

The buildings are designed to be built up from a structural ring beam of heavy section, Tanalith "E" treated, glue laminated timber. This makes them ideal for screw pile foundations, which will minimise both the time and the need for expensive heavy plant: although most foundation types can be accommodated.

The structure is based on machine profiled log system (MPL), which includes all internal walls. MPL means that all components for the structural shell are manufactured to factory tolerances: to ensure an accurate and fast build. This shell is then insulated with minimum 100mm solid board and wrapped in a breather membrane, before being clad in 22mm Siberian Larch\* to give a clean contemporary line. \* options available

The floor cassette is integral with the ring beam, and comprises solid board insulation between infill joints decked with 22mm Finnish Spruce structural grade T&G plywood.

Standard "U" values are      0.21W/m<sup>2</sup>K for the floor  
   0.19W/m<sup>2</sup>K for the walls  
   and      0.16W/m<sup>2</sup>K for the roof — based on our minimum specification.

Roof structures vary, but most often take the form of either scissor trusses (to give a modest vaulted effect), or traditional purlin and rafter. In both cases we construct a warm roof by fitting an OSB or plywood deck over the rafters. Other structures, including feature trusses, can be designed into your project as required.

Joinery is all pre-hung and pre-finished, and doors Part M compliant. All windows are fitted with laminated or toughened glass as appropriate and multipoint locking systems.

Standard "U" values\* are      1.4W/m<sup>2</sup>K for the standard window units  
   1.2W/m<sup>2</sup>K for "Secure by Design" units  
   1.0W/m<sup>2</sup>K for triple glazed windows units

*\* Please note that these "U" values are assessed for the whole unit, not just the glazing cassette.*

We offer a comprehensive range of windows / glazing options including acoustic glazing, triple glazing, "Secure by Design" etc.

Our buildings meet or exceed all current LABC requirements, including air pressure testing and can be further specified to comply with BB93 (acoustic design of schools) BB100 (design for fire safety in schools), BB101 etc. Further information available from Cabinco on 01600 719218.

# Building for the Next Generation



“Fabulous Building”

“Bexwyke Lodge has drawn nothing by praise”

“Delivered on time and within a very tight construction schedule”

Stuart Leeming  
Manchester Grammar School

# Building for the Next Generation

## Case Study: Bexwyke Lodge, Manchester Grammar School.

At time of print this is probably the largest building of this construction type in the UK at 600 m<sup>2</sup>. Bexwyke Lodge was completed by Cabinco in the summer of 2008 and was shortlisted for an RICS (NW) Design and Innovation award alongside some very prestigious competition.

The building was linked to the main school by a 45m "post and beam" covered walkway, and "surrounded" by a further 600 m<sup>2</sup> of anti-slip decking produced from the same larch as the external cladding.

Led by the school, Cabinco Ltd worked with a project team, which included Ansell & Bailey Architects, Copeland Group, and SI Sealey, to finalise a design and specification for a building which was to form MGS' new Junior Section: a "feeder" for the Senior School. Clients wanted the building to be an innovative and inspiring unit which was to include five classrooms, fully equipped with the latest multimedia and IT equipment, a staff room, music rooms, and a reception area. The new building needed to be close to the main school and connected to it: as much to be seen as an integral part of MGS as for any practical reasons.

Built on a grid of concrete piers, and supported by a glulam ring beam, the building is based on an MPL 88 glue-laminated interlocking log structure, fully insulated to comply with and exceed all current building regulations requirements, and clad with larch for durability and low maintenance. The latter was pressure impregnated with fire retardant due to proximity to the existing school buildings.

The design comprises three fire compartments, and incorporates a comprehensive SSF and fire retardant specification: some applied off site (see above), some applied in-situ.

## International Green Apple - Built Environment Award Winner

Bexwyke Lodge is the first MPL system building in the UK to include acoustic attenuation to fully comply with Building Bulletin 93: "Acoustic Design of Schools". To achieve this, acoustic attenuation products were designed which are exclusive to Cabinco Ltd. The innovative new products developed were used to isolate floor from walls, and walls from roof to achieve the high acoustic performance required.

The timber building features roof lights and sun tubes to bring in natural light and save energy; together with high specification windows and doors for thermal efficiency and security. The overall design encourages natural ventilation; creating a comfortable, airy learning environment.

The lodge was also required to pass a pressure test, which it did with flying colours: comfortably exceeding design stage performance model forecasts.

Cabinco went onto site in early May 2008 and just 4 months later the building was complete: ready in time for the new school year in September. Stuart Leeming, Deputy High Master at Manchester Grammar School, made the decision to bring in Cabinco to design and manufacture the building in partnership with the school. Commenting on the project, Stuart said, "It is a fabulous building; Bexwyke Lodge has drawn nothing but praise from all who have visited, impressing with its light, airy interiors, its distinctive exterior and superb quality of finish." He continued, "Equipped to the highest technical standards, the building is an impressive addition to our estate and one that was delivered on time and within a very tight construction schedule."



# Building for the Next Generation

## Eco-School



### Eco-School—Product Summary

- ◆ Flexible floor plan based on 126m<sup>2</sup> area  
or 8.2m x 15.2m base model
- ◆ Screw-Pile Foundation, no heavy machinery & fast accurate installation (subject to conditions)
- ◆ MPL 75 structure - 75mm laminated wall log for extra strength, naturally insulative and fully FSC/PEFC certified.
- ◆ 22mm Larch Cladding (external) is weather resilient and does not require preservative treatment. It protects the structural log and increases the life of the building.
- ◆ Monopitch Roof with Single Ply Membrane has 30 year manufacturer's guarantee. Option for wildflower or sedum roof finish.
- ◆ Timber double glazed windows and doors. FSC/PEFC Certified. Secure by Design—standard U value of 1.2, option to increase to U value 1.0 with triple glazing
- ◆ 14 large windows and 2 external doors to increase natural light and reduce energy consumption
- ◆ High insulative properties reduce energy consumption and running costs
- ◆ Gerfloor or equivalent floor finish—hardwearing wipe clean finish for hygiene and durability.
- ◆ Specified heating package including under floor heating and air to air heat exchange. Option for ground source heat pumps where appropriate.
- ◆ Entrance Ramps—Access for All (fully part M compliant)
- ◆ Electrics Package - job specific and tailored to suit the school's needs to offer greatest flexibility.

# Building for the Next Generation



## **Conformity.**

All our buildings will conform to or surpass Building Regulation requirements. Indeed, we believe the design features incorporated will go a very long way to achieving BREEAM excellent rating with the final “tweaks” being client driven in terms of location and external works. Between us we have a good understanding of BREEAM and its requirements and are happy to assist where we can.

## **Options**

The following options are available and we are happy to consider any others you may require.

- ◆ Sedum roof
- ◆ Alternative Claddings
- ◆ Fire retardant treatment
- ◆ Supply and erect only
- ◆ Alternative layout/design/dimension
- ◆ Triple glazed windows u value 1.0w/km<sup>2</sup> or less
- ◆ Laminated glass or combination
- ◆ Noise reduction glass/asymmetric construction
- ◆ Reactive glass.
- ◆ Rainwater Harvesting
- ◆ Ground Source Heat Pumps
- ◆ Photo voltaic panels
- ◆ Roof lights / sun tunnels

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## Windows— “Secure by Design” ISO 9001 and ISO 14001 1.2w/m<sup>2</sup>K

All windows are machined from carefully selected Nordic pine impregnated for durability and factory coated with stain/lacquer.

All glazing is toughened as standard\*

All ironmongery multi-point locking

Tilt and turn.

A Selection of  
Window Designs  
& Colours to choose from.

1.2w/m<sup>2</sup>K\*

\* “Secure by Design” for the EcoSchool



## Doors

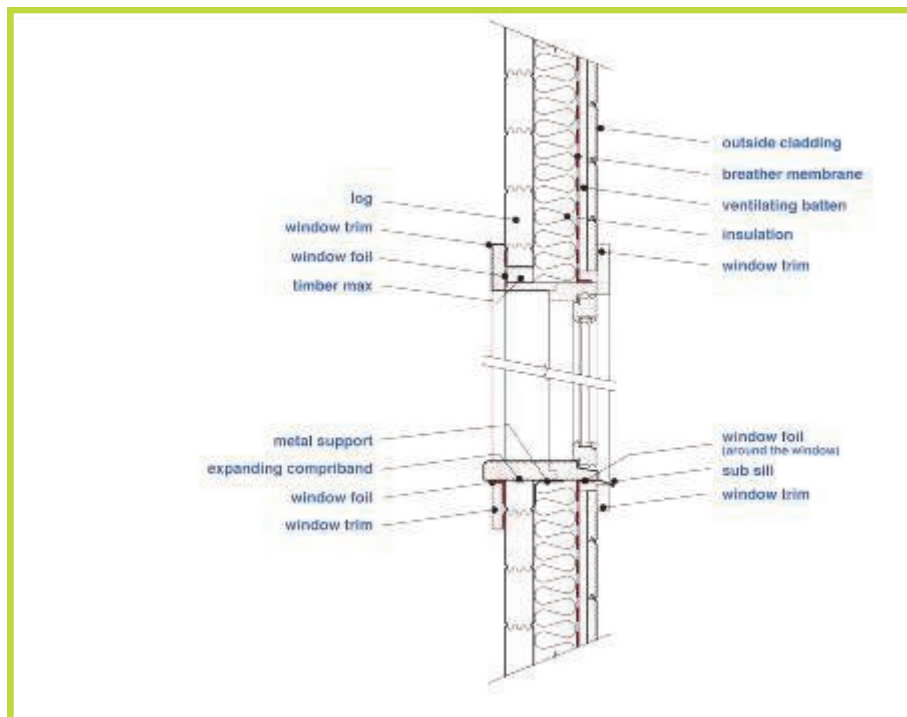
All glazing as windows

Fire doors installed where applicable

All doors feature multi-point locking

All doors, where applicable, fitted with fire escape furniture

All doors conform to part M access requirements.

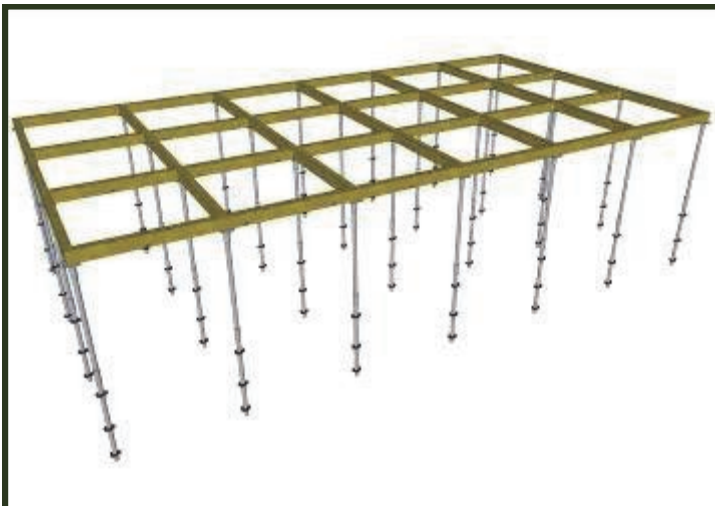


# Building for the Next Generation

## Advantages of Screw Pile Foundation Systems.

- ◆ Environmentally friendly as no concreting is required and everything can be easily removed, reused or recycled
- ◆ Minimal noise and vibration, with little disturbance of the soil
- ◆ No removal of soil, and no casing or dewatering required—well suited for contaminated ground.
- ◆ Resistant to desiccation or heave—ideal for tree root affected sites
- ◆ Sustains loads immediately after installation—enables rapid assembly of timber ground beam
- ◆ Exceptionally fast installation rate—up to 2 linear metres of pile installed per minute.
- ◆ Thick walled tube and galvanising provides a truly permanent foundation where typical life spans can reach over 120 years.
- ◆ Load bearing capacities of over 300kN SWL
- ◆ Load bearing capacity is equal in tension and compression—ideal for variable load situations.
- ◆ Requires only lightweight installation equipment—can operate on soft terrain without
- ◆ Ideal for restricted access sites even where headroom is limited.
- ◆ Installs to laser level accuracy, within +/- 3mm tolerance necessary for modular construction.

A Screw Pile being installed on a Cabinco site



3D image of timber ground beam on screw piles

# Building for the Next Generation

## **Eco School Energy Solutions**

Cabinco work with design partners who specialise in the planning, design, specification, installation, integration and commissioning of ground, air and water source heat pump systems, together with any associated solar thermal and heat distribution systems.

Our energy partners provide a range of specialist installation services particularly for renewable energy products, including:

- ◆ Ground, air and water source heat pump systems for heating or heating & cooling
- ◆ Under floor heating and other radiant and low temperature heat distribution systems
- ◆ Integrated solar thermal and bivalent systems

With the Eco-school turn-key solution, Cabinco work closely with our specialist installers on the M&E (Mechanical & Electrical) part of the project to ensure that the lighting and ventilation compliments the heating method designated and vice versa.

Initially space heating will normally be provided by an appropriate air source heat pump however; as the technology evolves the most energy efficient and greenest viable equipment available will be specified. Although site dependent in many cases we expect that ground source heat pumps coupled with Solar thermal collectors will offer a highly effective package.

Heat pumps run at their highest efficiency with lower flow temperatures than traditional heating systems. The method of heat distribution used, so Cabinco ensure that the most appropriate distribution system for your project is selected. In an Eco-school it is usually Under floor Heating but alternatives could be low temperature or fan assisted radiators or even hypoallergenic filtered and humidity controlled air conditioning systems.

As well as the normal domestic plumbing, mechanical ventilation, low energy zoned lighting, electrical power distribution and smoke alarms for an additional charge the works can be extended to cover:

- ◆ Rain Water Harvesting
- ◆ CCTV
- ◆ Wireless or wired connections for AV, ITC & Voice (Internet, Phone or TV)
- ◆ Fire & intruder Alarms
- ◆ Induction loops
- ◆ Utilities and other services from the boundary or elsewhere on the site or the new building.





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