MATERIAL
CONSIDERATIONS
A NATURAL FACTORY

04

CASE STUDY
ACHARACLE SCHOOL

SUST.
SUSTAINABILITY IN ARCHITECTURE

Architecture+DesignScotland
Ailtearachd is Dealbhadh na h-Alba


TEACHING SPACES
STORAGE
CIRCULATION
MULTI-PURPOSE / DINING
ADMINISTRATION
WC / CHANGING

With thanks to Gaia Group for photography.

Timber technologies

The school is the first example in the UK of 'Brettstapel' construction – a glue-free variant of massive timber construction imported from Austria. This has helped to create a highly insulated and airtight school, which easily achieves the internationally recognised German 'Passivhaus' standard in terms of fabric performance. All other solid timber used in the project, such as decking, battens, bridge glulams and beads are from Scottish timber.

Special timber-related features

Brettstapel is a solid timber construction system fabricated from softwood timber posts connected with hardwood timber dowels. This relatively simple method of construction does not use glues or nails and can be used to make beautiful, low carbon, healthy buildings that are quick and easy to build.

All the timber in the building is untreated, as the types of timber used have been chosen to suit their environment. All decking and cladding is made from the heartwood of European larch, which is naturally durable. The timber used for the Brettstapel panels is Silver fir. As with all timber, this has the ability to absorb a small amount of excessive indoor humidity, which helps to create a healthy indoor environment.

CASE STUDY
ACHARACLE SCHOOL

Name of building
Acharacle Primary School

Date completed
2009

Building type
Education

Location
Acharacle, Ardnamurchan, Argyll

Architect
Gaia Architects

Client
The Highland Council

Main contractor / timber supplier
McGregor Construction (Highland) Ltd
Bretstapple

Anticipated lifespan of building
As long as the Victorian stone-built schoolhouse it replaced

Background to building
The new Acharacle School has been constructed within the playground of the original school and represents the state-of-the-art in sustainable construction.

The building's design was developed by the architects who discussed the design with the pupils, staff and the local community in a series of workshops.

This resulted in a two-winged layout with a central, communal entrance. The 'classroom wing' is orientated east-west to maximize solar gain, while the 'community wing' is aligned close to a north-south axis.

The new school is a healthy, low tech and low carbon environment for pupils, staff and the community for generations to come.

Material Considerations
A Natural Factory

Forestry Commission Scotland

Silvan House
231 Corstorphine Road
Edinburgh EH12 7AT

+44 (0)845 367 3787

fcscotland@forestry.gsi.gov.uk

Sust.
Architecture + Design Scotland

The Lighthouse
11 Mitchell Lane
Glasgow G1 3NU

+44 (0)141 204 3635

info@sust.org