

## Cladding

# Case study of cladding at Stonebridge Hillside Hub, West London:

TRADA Technology's marketing manager, Rupert Scott, describes the use of the softwood larch as cladding in this extract from a detailed case study published in 2010

The Stonebridge Hillside Hub is a key scheme in the continuing regeneration of the Stonebridge Estate in West London. It is a major resource for the 4,000 strong culturally diverse local community; it aims to bring people together, improve local health, enable educational, leisure and community initiatives, encourage investment in the local housing market, provide much-needed retail space and give a new focus to a previously deprived part of the borough.

### Building description

The building is formed of two six-storey wings joined by a three-storey community centre – a strongly articulated central building with a curved zinc roof and a private landscaped garden at the rear. The lower three storeys of the west wing contain a Primary Care Trust health centre. The lower two storeys of the east wing house a convenience store with a two-storey car park at the rear. The four upper floors of both wings contain a tenure blind mix of shared ownership and privately owned apartments.

### External timber cladding

The larch cladding was designed to achieve three scales of grain:

- Firstly, Siberian larch was specified for its tight, uniform grain. Sapwood was excluded and the untreated wood should weather to a consistent silver grey.
- Secondly, the elevation was separated into bands of horizontal boards separated from each other by zones containing vertically fixed boards and windows. The horizontal timbers run around the cantilevered balconies wrapping them into the composition and the overall effect is of large-scale vertical and horizontal grains woven together.
- Thirdly, two differing sizes of horizontal cladding board were used. Again, this gives the façade a textured 'corduroy' feel of light and shade when viewed from the surrounding streets. Both board types

have thirty degree chamfered tops and bases to aid shedding of water and to prevent staining and warping. The boards are fixed with a gap between them small enough to prevent water ingress but large enough to allow air to circulate around the timber. A subtle detail occurs when the horizontal timbers wrap around the balconies where the thinner boards are omitted to allow a greater degree of transparency to these outdoor living areas.

The project was procured under a design and build contract with the contractor having a significant influence on specification. A typical result of this is to be seen in the apartment windows that have a very high performance specification but are aesthetically disappointing, in this case because of the very chunky frames. This shortcoming resulted in a particular timber detail being formulated where the vertical and horizontal boards sit in front of the windows, overlapping the thick frames so that, looking at the building, an elegant juxtaposition of glass against timber is seen.

The timber envelope achieves a U-value in excess of 20% above Building Regulations and all timber is from FSC certified sources.

*The upper two storeys are clad in larch*



## Cladding

The Stonebridge Hillside Hub uses softwood cladding. What if tropical hardwood cladding were specified? In this extract from TRADA Technology's book *External timber cladding*, senior consultant architect Patrick Hislop outlines what to consider when using tropical hardwoods as cladding.

In the past, there has been a wide range of tropical hardwoods used for timber cladding, although less frequently used than softwood and generally limited to more prestigious buildings. Concern about the sustainability of many of these has limited their use. However, there are now tropical timbers being imported with full certification of sustainable management whether plantation grown or 'secondary' species. These secondary species are less well known but have similar characteristics of durability, strength and hardness as the better-known timbers. Some of the traditional tropical hardwoods may be grown in plantations that are not in their indigenous countries that may affect some of their basic properties of density, colour and durability. Confirmation may need to be sought that they are still suitable when used for cladding.

As it is not possible to include a full range of tropical hardwoods that are suitable for cladding, it is necessary to generalise on the typical features relevant to their use. Generally, tropical hardwoods are stronger, more robust and more durable than softwoods and may be a preferable choice if there is a high risk of mechanical damage. Because of their density, they are less absorbent and will react more slowly to any variations in moisture but it is still preferable to use a species referred to as a small or medium movement wood. Tropical woods are usually supplied kiln dried rather than "green". While many tropical timbers are rated as durable or very durable, this only applies to the heartwood and all sapwood should be excluded. Most tropical hardwoods are highly resistant to any treatment with preservative. Further information on this is given in BS EN 350-2 and in the TRADA Wood Information Sheet, *Timbers their properties and uses*.

All the tropical hardwoods, whatever their original colour, will eventually weather to grey when exposed unfinished, although some will darken initially. While tropical hardwoods can be satisfactorily finished with coatings, care must be taken with the oilier woods, such as iroko and teak. It is likely that coatings on hardwoods may require more frequent maintenance than when used on softwoods, as they do not absorb penetrating stains as readily. If the bleached colour is acceptable, they are better left unfinished and should not then require any maintenance for the lifetime of the building. Other than bleaching out the natural colour, exposure to ultraviolet light will not significantly affect the surface of these hardwoods but the increased uptake or loss of moisture in unfinished wood can lead to some surface checking. Because these woods are denser and stronger than softwoods, thinner sections can be used and tongued or rebated profiles are less likely to be damaged during construction or in use.



The layer of thinner horizontal boards are omitted at balconies to increase transparency

Building type: Healthcare / housing / community / retail  
Location: Stonebridge Estate, West London  
Client: Hyde Housing Association  
Architect: Edward Cullinan Architects  
Structural engineer: Fife Belcher Grimsey & Partners  
Main contractor: Rydon Construction  
Specialist glulam beam engineer and subcontractor: Constructional Timber  
Joinery: HKH Company Ltd  
Timber elements: Prefabricated glulam roof structure, cladding, ceiling panels  
Timber species: Siberian larch, Douglas fir



Rupert Scott says timber cladding, from FSC certified sources, contributes to the high thermal performance at Stonebridge Hillside Hub

## Supporting Services

TRADA Technology has several publications on timber cladding, including:

- *External timber cladding*, 2nd edition, Patrick Hislop

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