

The NZ Green Building Council, Green Star NZ Tools, FSC Certified Timber and Formaldehyde Emissions from Composite Timber Products Supplied by CHH Woodproducts NZ

January 2010

This document contains a summary of information about the NZ Green Building Council (NZGBC) Office, Education, Industrial and Interiors Tools, FSC Certified Timber and the Formaldehyde Emissions of CHH Woodproducts composite wood products.

NZ Green Building Council

Who are the NZ Green Building Council (NZGBC)?

The NZGBC was formed in July 2005. It was initially funded by the government, but is now member funded. Members are primarily made up of the NZ Property Council.

The NZGBC strategy is to encourage the use of the top 25% of buildings to incorporate 'green best practises'.

The NZGBC has developed a number of Rating Tools for different building types including:

- Office Design & Built
- Education Design & Built
- Industrial Design & Built
- Office Interiors

It also continues to develop tools for rating these buildings in-use (Performance) as well as tools for other building types.

How do these tools work?

The Tool is broken down into eight areas that look at aspects with environmental impact. A ninth category is also included for innovation.

In each area points are awarded based on whether the building will meet certain criteria. Each category is then weighted and the points are totalled to determine the overall rating (between one and six stars) of the building. A five star building needs to achieve 60 points, while a six star building needs to achieve 75.

More Information

More information about the NZGBC, the Office Design Tool and the schedule for development of other tools can be found on the NZGBC website: www.nzgbc.org.nz.

Green Star NZ Office, Education and Industrial Tools

What do these tools have to do with timber products?

In the Office, Education and Industrial Tools there are two areas in the tool that directly impact on timber based products. One in the Materials section (MAT-6 Timber) and one in the Indoor Environment Quality section (IEQ-3 Indoor Air Quality).

MAT-6 Timber

"Up to three points are available as follows:

Two points are awarded where a % (by volume) of all new timber products used in the building and construction works are any combination of the following:

- *Re-used timber*
- *Post-consumer re-used timber; or*
- *Independently certified as having lower environmental impact than standard timber, as verified through a materials certification body recognised by the NZGBC (a list of approved eco-labels is available on the NZGBC website).*

Points are awarded as follows:

- *One point for 50% timber by volume*
- *Two points for 90% timber by volume.*

One additional point is awarded where it is demonstrated that 90% of the timber selected does not exceed the minimum treatment classification that is required by the New Zealand Building Code for the application that it is being used."

The approved certification system at time of writing was limited to Forestry Stewardship Council (FSC).

IEQ-3 Indoor Air Quality

“Formaldehyde Emissions

One point is awarded where:

- 90% of all engineered wood products and ceiling tiles (including exposed and concealed applications) have low or no formaldehyde emissions.”

Products used on the exterior are excluded. Additional guidance provides a list of test methods and acceptable limits for the E₁ (less than 1.0-1.5 mg/L, depending on the product) emission class.

There are some other areas of the tool which are not specifically related to timber but may also be impacted by its use. Included, for example, are 5 points for innovation.

Which wood products does this cover?

Additional guidance provided by NZGBC outlines the common applications that fall within this requirement.

“Expected timber uses include, but are not limited to

- Structural timber including wall, floor and roof structures
- External and internal cladding
- Flooring / wall / ceiling finishes
- Internal and external joinery including windows, doors and other specialist uses of timber such as installed furnishings, joinery fixtures, or balustrades and
- Structural formwork (which is left in-situ).”

Furnishings which are not installed, such as chairs, desks, tables etc, are covered separately under the Interiors Tool.

Green Star NZ Interiors Tool

What does this tool have to do with timber products?

In the Interiors Tool there are three areas in the tool that directly impact on timber based products; two in the Materials section (MAT-6 Timber and MAT-A Furniture) and one in the Indoor Environment Quality section (IEQ-3 Indoor Air Quality).

MAT-6 Timber

“Up to three points are available as follows:

Two points are awarded where a % (by volume) of all new timber products used in the building and construction works are any combination of the following:

- Re-used timber
- Post-consumer re-used timber; or
- Independently certified as having lower environmental impact than standard timber, as verified through a materials certification body recognised by the

NZGBC (a list of approved eco-labels is available on the NZGBC website).

Points are awarded as follows:

- One point for 50% timber by volume
- Two points for 90% timber by volume.

One additional point is awarded where it is demonstrated that 90% of the timber selected does not exceed the minimum treatment classification that is required by the New Zealand Building Code for the application that it is being used.”

The approved certification body at time of writing was limited to Forestry Stewardship Council (FSC).

MAT-A Furniture

“Up to twelve points are awarded where it is demonstrated that the furniture has a reduced environmental impact as determined by the MAT-A Furniture Calculator. Maximum points can only be obtained if information about all of the furniture has been included in the furniture calculator.”

There are four strategies for achieving points:

1. Reuse and refurbishment of furniture
2. Environmental certification from a third party
3. Products with extended warranty periods
4. Product stewardship scheme

The approved environmental certifications include; Environmental Choice NZ (ECNZ), ISO14001 or Enviro-Mark Accreditation, with ECNZ having a higher rating. These apply to the finished products rather than the raw materials.

ECNZ publishes *EC-32 Licence Criteria for Furniture and Fittings* which specifies the requirements of both Solid Wood and Wood-Based Panels used in these products.

Solid wood must either be:

- recycled ,or,
- a minimum of 30% by weight of the wood in the furniture or fitting must be from plantations licensed under the Forest Stewardship Council or equivalent schemes.

Wood-Based Panels shall include:

- a minimum of 30% by weight of wood in the furniture or fitting must be from plantations licensed under the Forest Stewardship Council or equivalent schemes, or,
- at least 40% of all wood purchased for the panels must consist of sawdust/wood chips and/or waste wood from wood processing operations, forest harvesting waste and/or untreated demolition and/or recycled fibre.

CHH Woodproducts NZ is able to supply solid timber that meets the 30% FSC requirement, upon request, and wood-based panels which are made up of 40% or greater waste wood.

IEQ-3 Indoor Air Quality

“Engineered wood products and ceiling tiles

Up to two points are awarded where the engineered wood products and ceiling tiles used in project meet the following benchmarks for low VOC limits and formaldehyde emissions (individual requirements are listed in Additional Guidance), or were installed at least 24 months ago, or a combination thereof, as follows:

- *One point is awarded where 90% of all engineered wood products and ceiling tiles (including exposed and concealed applications) have low formaldehyde emissions and are low VOC.*
- *An additional point is awarded where the above point is achieved and 90% of all engineered wood products (including exposed and concealed applications) meet E0 formaldehyde emission limit levels for engineered wood products.*

...

Note: Engineered wood product used in furniture and fittings should also be assessed against this criteria.”

Additional guidance provides a list of test methods and acceptable limits for the E₁ (less than 1.0-1.5 mg/L, depending on the product) and E₀ (less than 0.5 mg/L) emission classes.

There are some other areas of the tool which are not specifically related to timber but may also be impacted by its use. Included, for example, are 5 points for innovation.

Which wood products does this cover?

Additional guidance provided by NZGBC outlines the common applications that fall within these requirements.

“Expected timber uses include, but are not limited to

- *Structural timber including wall, floor and roof structures*
- *External and internal cladding*
- *Flooring / wall / ceiling finishes*
- *Internal and external joinery including windows, doors and other specialist uses of timber such as installed furnishings, joinery fixtures, or balustrades and*
- *Structural formwork (which is left in-situ).”*

“Furniture includes, but is not limited to, workstations, chairs, tables, and storage units (storage includes filing cabinets). Points will not be awarded unless it is demonstrated that all furniture has been included in the Furniture Calculator.

FSC Certified Timber

What is FSC?

The Forest Stewardship Council (FSC) is an international organization that brings people together to find solutions which promote responsible stewardship of the world's forests.

What is FSC Certification?

FSC certification is carried out by FSC accredited certification bodies. FSC itself does not certify forest operations or manufacturers but works through accredited agents. There are a number of these in New Zealand and Woodproducts has chosen to work with SCS (Scientific Certification Systems) and its local agent Ensis. This maintains FSC's independence between its standards and requirements, and operations seeking certification.

There are two types of FSC certificates available from certification bodies; Forest Management (FM) Certificate and Chain of Custody (CoC) Certificate.

CHH Woodproducts NZ requires Chain of Custody Certification. This applies to the path taken by raw materials from the forest to the consumer, including all successive stages of processing, transformation, manufacturing and distribution.

From a customer perspective, FSC certification represents a promise that is being made to them. Chain of Custody standards are the mechanism FSC has to ensure that 'promise' is delivered.

Operations that have been independently verified for FSC Chain of Custody certification are eligible to label their products with the FSC logo or alternately can indicate FSC certification through sales documentation.

How is certification achieved?

Each mill/operation at CHH Woodproducts NZ is audited to ensure that they have the appropriate systems, procedures and training in place to track wood from forests that have been certified through their operations.

Depending on the type and level of wood used the product may be labelled in one of three ways:

1. FSC Pure
2. FSC Mixed
3. FSC Recycled

For FSC Pure certification each operation must keep separate inputs from forests with a Forest Management Certificate throughout the entire process. For a large processor of wood, such as CHH Woodproducts NZ, this is not possible with the NZ forestry stock.

CHH Woodproducts NZ has achieved FSC Mixed status at a number of its mills. The requirements for this fall into one of two categories:

1. If an operation can maintain a rolling average of greater than 70% inputs from FSC Forests the operation may claim FSC Mixed status for 100% of its output products.
2. If an operation can maintain a rolling average of greater than 10% inputs from FSC Forests and sources all the remaining inputs as 'FSC Controlled Wood' it can claim the same percentage of outputs within a product group as the percentage of inputs from FSC Forests i.e. if 40% of inputs come from FSC Forests then 40% of the product sold can be labelled as FSC Mixed product

In all cases the second option has been adopted by CHH Woodproducts NZ. This means that different operations will be able to produce different volumes of FSC Certified product.

Which mills are certified?

The Kawerau Mill has had certification for a number of years, recently however an additional six mills have been audited and have FSC CoC Certification in place.

Mill	Product Category	Certificate Number
Whangarei	Sawn Timber	SCS-COC-001317
Kawerau	Sawn Timber	SCS-COC-00403
Nelson	Sawn Timber	SCS-COC-001321
Marsden Point	LVL	SCS-COC-001319
Rotorua	Profiles	SCS-COC-001598
Tokoroa	Plywood	SCS-COC-001316
Rangiora*	MDF	SCS-COC-001957

* Owner is Daiken, CHH Woodproducts is distributor

What products does this include?

Certification of these seven mills means that most of the products used in the construction of Office, Education and Industrial Buildings are covered from formwork and landscaping products (with the exception of Roundwood) through to structural timber, plywood, mouldings, weatherboard, fascia, MDF and some decorative products. This includes the following brands:

- Laserframe® MSG Timber
- Pinex® Outdoor Timber
- Pinex® Verified MSG8 Outdoor Timber
- Ecoply® Plywood
- Shadowclad® Plywood Cladding
- hySPAN®, hyJOIST®, hy90®, hyONE, hyCHORD®, hyPLANK®, truFORM® and edgeFORM Laminated Veneer Lumber (LVL)
- Profiles™ Weatherboard, Fascia, Mouldings, Finished Boards, Joinery Profiles and Outdoor Profiles
- Customwood® MDF sheet and mouldings (supplied by Daiken)

When will CHH Woodproducts NZ start supplying FSC product to the market?

We are able to supply FSC Certified product to merchants now.

Do merchants also need to be certified?

Yes. FSC Certification requires that each legal owner of the timber between the forest and the builder/construction company has FSC CoC Certification in place, this includes the merchant and finished goods manufacturers.

Some merchants have certified one store in each major region specifically for the purpose of meeting these requirements. It is recommended that builders/construction companies check with their current supplier.

Formaldehyde Emission from Engineered Wood Products

What are engineered wood products?

Typically these products are made up of wood and adhesive. They include products such as Laminated Veneer Lumber (LVL), Medium Density Fibreboard (MDF), Plywood, and Glue Laminated Beams (Glulam).

CHH Woodproducts NZ is involved in the manufacture of the first three of these.

Where does the formaldehyde come from?

Typically engineered wood products are manufactured using phenol formaldehyde resins. These are typically cured in a hot press. Depending on the type of resin used and the curing conditions there can be very low levels of free formaldehyde left in the product.

What emission class do engineered wood products need to meet for NZGBC?

The NZGBC provides further guidance on the levels that are required to meet the IEQ-3 criteria. In essence this asks for products which have an E₁ or better formaldehyde emission class. The Interiors Tool has a provision for additional points where E₀ products are used.

What are the emission classes for CHH Woodproducts NZ engineered wood products?

The following outlines maximum allowable levels for emission classes, in reality levels will typically be lower. For example, actual emissions measured for plywood are usually much less than background levels in the air we breathe (0.03 mg/L).

Laminated Veneer Lumber (LVL)

All LVL products sold by CHH Woodproducts NZ under brand names such as hySPAN®, hyJOIST®, hyONE, etc are manufactured to AS/NZS 4357.0. This standard requires that product is tested in accordance with AS/NZS 4357.4 for formaldehyde emission and that the class E₀, E₁ or E₂ is printed on the product. LVL products manufactured by CHH Woodproducts NZ fall into the E₀ class (≤ 0.5 mg/L). This is tested regularly and independently verified by the Engineered Woodproducts and Plywood Association of Australasia (EWPA) who in turn are independently audited by JAS-ANZ.

Plywood

All plywood sold by CHH Woodproducts NZ and marketed under the brand Ecoply® or Shadowclad® is manufactured to AS/NZS 2269. This standard requires that the product is tested in accordance with AS/NZS 2098.11 for formaldehyde emission and that the class E₀, E₁ or E₂ is printed on the product. All Ecoply product falls into the E₀ class (≤ 0.5 mg/L). Again this is tested regularly as required by the standard and is independently verified by EWPA/JAS-ANZ.

Medium Density Fibreboard (MDF)

All MDF products sold by CHH Woodproducts NZ under brand names such as Customwood®, Bestwood®, etc are manufactured in accordance with AS/NZS 1859.2. This standard requires that product is tested in accordance with AS/NZS 4266.16 for formaldehyde emission and that the class E₀, E₁ or E₂ is printed on the product. Standard MDF products sold by CHH Woodproducts NZ fall into the E₁ class (≤ 1.0 mg/L) and E₀ class (≤ 0.5 mg/L) product is available on request. A sample from each E₀ batch of product is independently tested by Timber Test in New Plymouth (Stephen Young & Associates Ltd).

Particleboard

All Particleboard products sold by CHH Woodproducts NZ under the brand name Kopine® are manufactured in accordance with AS/NZS 1859.2. This standard requires that product is tested in accordance with AS/NZS 4266.16 for formaldehyde emission. All particleboard products manufactured by CHH Woodproducts NZ fall into the E₁ class (≤ 1.0 mg/L), with only flooring products being labelled. All product is independently tested monthly by Hexion.