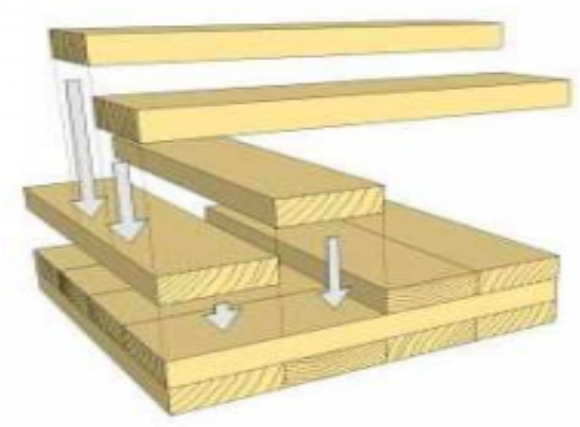
CLT – Cross Laminated Timber for Flat roof and Parapet constructions

Introduction

Cross-Laminated Timber (CLT) is a subcategory of engineered wood with panel product made from gluing together at least three layers of solid-sawn lumber (i.e., lumber cut from a single log).



Cross laminated timber (CLT)

- Preformed off site.
- Designed for quick installation of timber structural decks.
- Capable of spanning large open spaces
- Suitable for internal ceiling finishes
- Protection from the elements must be allowed for to prevent the panels becoming saturated prior to the application of any waterproofing.
- **Usually contain high levels of moisture content and must be protected from the elements upon installation until such time they can be made waterproof.**
- **Due to the high levels of moisture content this may inhibit the application of any first layer of waterproofing.**

These timbers have no natural defence against decay caused by sustained high levels of moisture, typically above the design threshold of 20% moisture content, and this high level of moisture may prohibit achieving a satisfactory bond of the waterproofing.

Cross Laminated Timber structures should not be subjected to high moisture either during transportation, storage or installation, as incorrect installation may create conditions for moisture to become trapped.

Every effort should be made to ensure high levels of moisture is trapped within CLT structure including detailed plan for protection against both short- and long-term exposure to excessive moisture. It is recommended that a Moisture Control Plan will be required for the management and control of moisture on all projects.

Temporary weather protection

- Where CLT is to be left exposed for a long period of time additional weather protection may be required to exposed grain members.
- CLT used for roofs, balconies and parapets should be protected as soon as possible with a vapour permeable or waterproof membrane, however these membranes should not be applied when the CLT surface is wet (above 20% moisture content). If the roof panels are wet before the protective membrane is applied, it may be necessary to provide temporary protection above the roof to allow for the panels to dry.
- An adhesion test for the bonding of the waterproofing must be undertaken at regular intervals across the roof prior to the installation of any waterproofing membrane. IKOs recommendation is the use of the IKO Ultra S-A Air and Vapour Control layer to be applied using either the IKOpro Bonding agent or IKOpro Sprayfast MPP, and should a satisfactory bond be achieved, this would enable the CLT to be made watertight, and no further preparation layer should be required.

Further guidance may be sought from:
The Structural Timber Association publication: STA Advice Note 14 titled 'Robustness of CLT Structures - Part 1: Key principles for moisture durability' provides guidance for the design, concept detailing and installation of panelised CLT building structures.

NHBC technical guidance 6.2/06
Flat roofs, balconies and parapets High: Detailing of these elements to exclude moisture in the long term is difficult to achieve in practice and their adequate construction cannot be guaranteed.

IKO recommendation where CLT is being used for structural decks and parapets.
As a direct result of these concerns, regarding effectively achieving an adequate bond of the waterproofing layer to CLT substrates including structural decks and parapets.

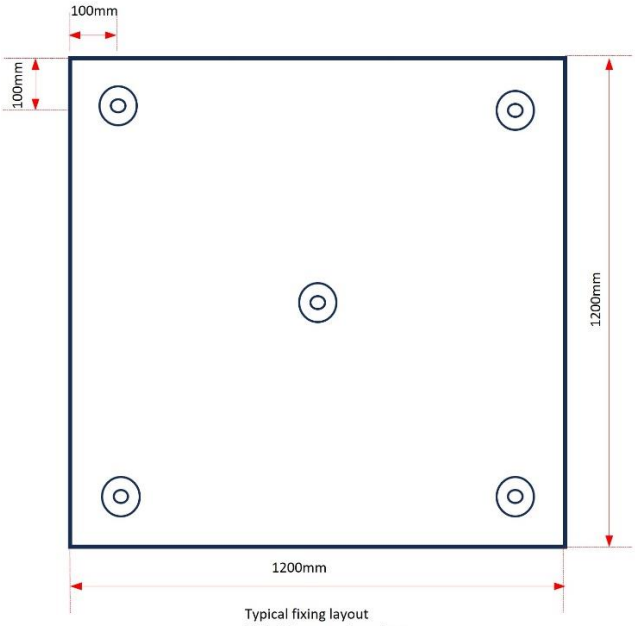
IKO recommendation for all waterproofing applications is to mechanically fasten a recovery board into the

CLT substrate using a min 5 fixings with 75mm washer plates per board in accordance with IKO recommendations prior to the application of the IKO waterproofing.

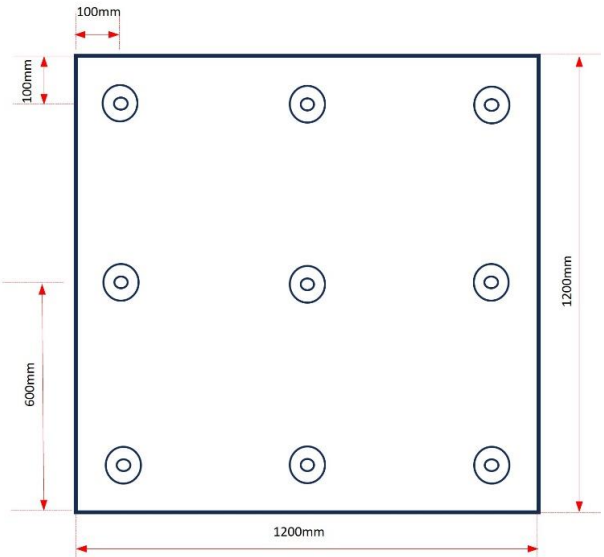
Application of the IKO recovery board should be undertaken and made waterproof during each working day.

IKO Recovery board:

- IKO Protectoboard – for Reinforced Bitumen membrane systems
- IKO Permaguard-PB – for Permatec hot melt systems



Typical fixing layout
With 75mm steel washers



Typical fixing layout for high wind load location
With 75mm dia steel washers

The IKO specified waterproofing can be fully bonded directly to the IKO Protectoboard.

Disclaimer

Whilst every precaution is taken to ensure that the information given in this literature is correct and up to date it is not intended to form part of any contract or give rise to any collateral liability, which is hereby specifically excluded.

IKO reserve the right to amend and/or withdraw this document without notice.

Users of published guidance for the installation of IKO materials should therefore verify with the company whether any changes in our specification, application details, withdrawals or otherwise have taken place since this literature was issued.