Managing elevated moisture content in timber framing

AKD Timber Framing is manufactured under controlled conditions to strict moisture content limits to optimise stiffness, stability and durability.

To maximise performance, timber framing should be protected from moisture whenever possible during construction. However, it is inevitable that framing will sometimes be exposed to moisture which may lead to an elevated moisture content within the timber. This Technical Note provides guidance on how to minimise, identify and manage high moisture to maximise service life and performance of the timber.

Exposure

Rain

The most common cause of high moisture is direct exposure to rainfall. This may be during storage of timber framing, while erecting the frame or after construction before the external cladding is installed. Torn wrap, storage on the ground and prolonged construction times may lead to excessive exposure.

Humidity

Timber may also have higher moisture content during periods of high humidity when timber can absorb moisture directly from the air. This is a particular concern when combined with plastic wrap, poor ventilation in fluctuating temperatures, which may lead to condensation near the surface of the timber.

Identifying High Moisture

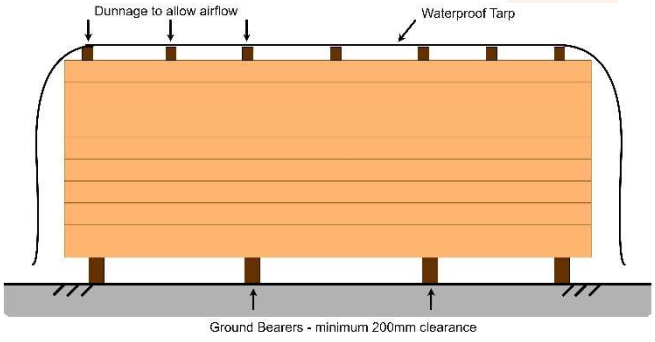
After timber is exposed to water, there are a few potential indicators that the timber moisture content has increased. These include:

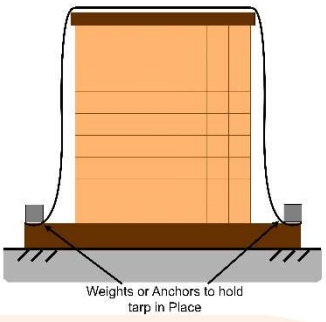
1. Visibly wet surfaces on the timber.
2. An increase in timber weight.
3. High moisture meter readings.
4. Discolouration due to water stains.
5. Some distortion of timber pieces.
6. Mould growth on the surface of the timber.

Protecting Timber

There are some sensible steps that can be taken to minimise the risk and impact of moisture exposure:

1. Timber framing should be stored off the ground with at least 300mm of clearance to allow airflow.
2. Timber framing should be protected with waterproof covers. Covers should be placed to fully cover the timber but still allow airflow under the stack.
3. Delivery should be scheduled to minimise the time the timber is stored unprotected onsite.
4. Construction should be scheduled to minimise the time between the erection of framing and the installation of the roof and external cladding.
5. Where possible, insulation should not be installed until external cladding is in place.
6. Ensure that there is adequate drainage to minimise water pooling around timber after rain. Pooled water should be removed as soon as possible.





AKD technotes

Managing elevated moisture content in timber framing

Impact

Short Term Exposure
Short periods of increased moisture will not have a lasting impact on the timber framing. Provided the timber is able to dry, it will return to its original moisture content condition.

Moderate Exposure
Timber that has a high moisture content for a short period may experience some mould growth on the surface of the timber. Provided the timber is able to dry, this mould will die; however, there may be some discoloration. There may also be some distortion of the timber.

Long Term Exposure
Significant impacts of high moisture are only noticeable when the timber remains above 20% moisture content for a prolonged period. In this case, fungi has the potential to decay the wood fibre, weakening the timber and making it unsound. Prolonged exposure may also reduce the strength of steel fixings due to corrosion.

Rectification

If timber gets wet during construction, builders should ensure that the timber is fully dry before enclosing the timber. It is recommended that, after the external cladding and roof have been installed, the timber is left to air dry before internal linings or insulation are installed. Fans, air conditioners and dehumidifiers may also be used to speed up the drying.

If a moisture meter is used to verify Moisture Content, the target moisture should be <18%.

Slightly distorted timber can be pushed back into place and refixed.

Where required, small areas may be planed to ensure an even surface; however, remedial treatment may be required for H2F or H3 materials.

If insulation has been installed, additional time may be required to ensure the insulation has fully dried (check with the manufacturer to ensure the insulation is still suitable for use).

Prior to installing internal lining, check for popped or rusted nails or screws and refix as required.

Prolonged Exposure

If the timber has been exposed for more than 3 months, an expert inspection should be conducted to assess the risk of decay.

Other Resources

More information is available from our industry partners:

Wood Solutions
www.woodsolutions.com.au
Design Guide 12 – Impact and Assessment of Moisture-affected Timber-framed Construction

FTMA
Timbertalks Podcast
Controlling Moisture within Buildings

Timber Queensland
www.timberqueensland.com.au
Technical Guide – Guide to the Assessment and Repair of Flood Damaged Timber and Timber Framed Houses