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1. GENERAL AND PRODUCT INFORMATION

PURPOSE	This guide relates to the design, installation and maintenance of Maglok™ Dragonboard®.
IMPORTANT DOCUMENTS	This guide must be read in conjunction with: <ul style="list-style-type: none">› Maglok™ Dragonboard® pass™› Maglok™ Dragonboard® Specification guide› Maglok™ Dragonboard® warranty.
SKILLS REQUIRED	This guide is suitable for use by a competent designer and person with basic carpentry skills. Where applicable, the person specifying or installing the Maglok™ Dragonboard® must be able to meet all restricted building work (RBW) provisions.
FOR MORE HELP	Technical assistance is available at www.maglok.co.nz . While all reasonable efforts have been made to ensure the accuracy of information provided, this guide is a guide only. It may be subject to change.
FOR OUR WARRANTY	Refer to www.maglok.co.nz .
PRODUCT DESCRIPTION	<p>Maglok™ is a chloride free MgO board. Chloride free MgO boards are also referred to as MGSO4 board or sulphate based MgO board.</p> <p>The boards are manufactured by combining magnesium oxide (MgO), magnesium sulphate, proprietary fibres and perlite with a water slurry. This mixture is then placed into moulds with layers of fibreglass mesh.</p> <p>The Maglok™ boards are supplied as follows:</p> <ul style="list-style-type: none">› thickness (mm): 20› panel dimensions (mm): 1800 x 1200, 2000 x 1200. <p>The boards have a shiplap edge that runs down the length of the panel and therefore avoids the need for installation of additional subfloor support.</p> <p>The panel face has a smooth side and a rough side. This provides the option for different finishes.</p>
SCOPE AND LIMITATIONS	For scope of use, limitations, conditions and statement of building code compliance, refer to the Maglok™ Dragonboard® pass™.

2. DESIGN

This section applies where Maglok™ Dragonboard® is to be specified in a building consent.

STEP 1: CONFIRM SCOPE

Confirm the proposed use is within the scope and limitations of the pass™.

STEP 2: DETERMINE THE USE

Maglok™ Dragonboard® can be used as a flooring system or as part of a SoundDown™ sound and fire-rated cassette floor and ceiling system.

For use as part of a SoundDown™ system, refer to the relevant SoundDown™ design guide.

STEP 3: CONFIRM RELATED BUILDING WORK

Confirm the subfloor system is suitable for the installation of Maglok™ Dragonboard®.

Maglok™ can be installed over an NZS 3604:2011 timber frame subfloor structure (refer to section 7 of NZS 3604:2011), including as a structural floor diaphragm (refer to section 7.3 of NZS 3604:2011 or a NASH Design Standard lightweight steel subfloor structure).

Where the subfloor is to be lightweight steel, specify thermal bridging as necessary.

The structural supports may also consist of (but not limited to) engineered composite joists, metal deck, reinforced concrete beams or structural steel beams.

Where large spans and specific floor loads are required, specific engineering design will be required. Maximum spans spacings are:

- 450 mm for 1800 mm x 1200 mm panel
- 400 mm for 2000 mm x 1200 mm panel.

Where the subfloor framing is existing, confirm that the subfloor is suitable for the intended building work and the proposed building use.

Where external wall framing is to be installed on the Maglok™ board ensure that taping of the flexible wrap or rigid air barrier is specified.

STEP 4: SPECIFY BOARDS AND FIXINGS

Specify Maglok™ panel size.

Specify fixings.

Fixings are to be 50 mm x 8-gauge screws, fixed at 150 mm centres around panel edges and 200 mm centres through the body of the panel. Fixings must be, at a minimum, zinc alloy surface coated unless in wet areas where fixings must be 316 or 304 grade stainless steel.

STEP 5: SELECT ALL NECESSARY DETAILS

Select the relevant Maglok™ Dragonboard® details.

STEP 6: QUALITY CHECK

Confirm all relevant design requirements are met.

Check that the building consent plans and specifications clearly define and include:

- all relevant installation details, these should be shown on each relevant plan sheet
- fixing requirements.

Collate the following documents and include in the building consent application:

- Maglok™ Dragonboard® pass™
- Maglok™ Dragonboard® Specification guide
- Maglok™ Dragonboard® warranty and
- this document.

3. PRE-INSTALLATION

HEALTH AND SAFETY

Take all necessary steps to ensure your safety and the safety of others:

- › ensure adequate ventilation or mechanical dust extraction when cutting or drilling
- › ensure the boards are well supported when cutting and nailing
- › wear appropriate safety equipment, clothing and footwear
- › use all tools in accordance with relevant instruction manuals
- › plan and monitor a safe approach for working at height; select and use the right equipment
- › clear the work area of any obstruction before work starts.

For further information refer to:

- › WorkSafe. [July 2018] *Small Construction Sites, the Absolutely Essential Health and Safety Toolkit.*
- › WorkSafe. [December 2016] *Health and Safety at Work, Quick Reference Guide.*

These documents are available at www.worksafe.govt.nz.

HANDLING AND STORAGE

Handling

Care must be taken during loading, unloading, and transporting Maglok™ boards to prevent pre-installation damage.

Unload boards by hand and carry them on their edge.

If unloading mechanically, ensure there is a minimum of two well-spaced supports or the boards are supported by a pallet to avoid excessive bending or sagging.

Ensure edges are protected. If using a crane, use a spreader bar.

Storage

To store on-site, stack boards flat on a dry surface with a minimum of three supports at least 150 mm above the ground.

Ensure the area is dry, well ventilated, out of direct sunlight and away from any heat sources.

Cover the boards.

TOOLS AND EQUIPMENT REQUIRED

Install boards using standard carpentry tools and equipment. Use a fine-tooth hand saw; carbide or diamond tipped blade; a hard tipped hand saw; and a drill, hole saw and speed bits. Use all tools in accordance with good trade practice and supplier's instructions.

Gorilla grip 1 hour expanding polyurethane adhesive must be used.

4. INSTALLATION

STEP 1: ACCESS BUILDING CONSENT DOCUMENTATION

Where applicable, access and view building consent documentation.

Access and view details in the building consent documentation or access the relevant details from Maglok™ Dragonboard®.

NZS 3604:2011 or NASH Standard Part Two: 2019 should also be available for reference.

STEP 2: CONFIRM USE

Confirm the proposed use is within the scope and limitations of the pass™.

STEP 3: CHECK RELATED BUILDING WORK

Confirm the subfloor system is in accordance with the building consent or is suitable for the installation of Maglok™ Dragonboard®. The subfloor should be constructed in accordance with NZS 3604:2011 for a timber frame subfloor structure or NASH Design Standard for a lightweight steel subfloor structure.

Where the subfloor framing is existing, confirm the subfloor is suitable for the intended building work and the proposed building use.

For new and existing buildings ensure the subfloor is straight and true and within framing tolerances as described in NZS 3604:2011 section 2, Table 2.1 or NASH Standard Part Two: 2019, section 2.5. A thermal bridging layer must be installed if necessary.

Check the moisture content of timber framing. It must be no greater than 18 % MC.

STEP 4: PREPARE BOARDS

Cut boards using a fine-tooth carbide blade.

Circular saws and table saws work best for clean square cuts. Edges can be routed flush or curves created using synthetic diamond or carbide cutters.

All cutting will create dust. Use a vacuum sucker or blower.

Use synthetic diamond or carbide drill bits and hole saws for penetrations through the Maglok™. A pilot hole is recommended in the first instance to ensure correct placement.

Predrill 2.4 mm pilot holes to prevent splitting the panel. A larger predrill diameter hole of up to 4.0 mm can also be used to accommodate steel framing subframe thermal expansion or structural movement.

Fixings are to be located as follows:

- min 12 mm from all butt edges (15 - 18 mm is recommended),
- min 50 mm from all corners and shiplap joints,
- 200 mm centres along all joists
- 150 mm around perimeter.

STEP 5: INSTALL BOARDS

Install boards in accordance with details in the building consent documentation or relevant Maglok™ details.

Ensure panel is the correct way up to suit the selected flooring finish. The smooth side is ideal for the application of finished flooring such as carpet or resilient flooring. The rough side provides excellent adhesion for the application of ceramic tiles, stone, concrete toppings or decorative materials.

Ensure the boards are laid perpendicular to the joists in a staggered pattern and ends are supported by a subfloor member or support framing. Allow a 3 mm gap between sheets to allow for framing movement. Check the surface for joist deflection and adjust or pack where possible to maintain a flat, even surface.

Timber joists: apply a continuous 6 mm bead of adhesive to the shiplap joint along the long edge of the board before placement of the next board. Do not allow the adhesive to skin over. Glue does not need to be applied to the timber joist.

Steel joists: apply a continuous 6 mm bead of adhesive as for timber and apply a 10 mm bead of adhesive to the steep joist.

Fix boards using 50 mm x 8-gauge screws at 150 mm centres around panel edges and 200 mm centres through the body of the panel. Fixings must be, at a minimum, zinc alloy surface coated unless in wet areas where fixings must be 316 or 304 grade stainless steel and a minimum of 12 mm from the edge; 15 - 18 mm is recommended. Do not overtighten screws as it will reduce their holding strength.

STEP 6: INSTALL FLEXIBLE BUILDING WRAP OR RIGID AIR BARRIER

Where the external wall framing has been installed on the Maglok™ board, ensure that all flexible building wrap or rigid air barrier joints are taped.

STEP 7: FINISHING

Install the selected flooring finish. If vinyl or vinyl plank is to be used, ensure all Maglok™ seams are filled with a polyurea or modified epoxy seam filler. Mix in according to the manufacturer's packet instructions. Sand flat to create a uniformly smooth surface.

STEP 8: COMPLETION

Check to ensure all components are installed correctly and in accordance with Maglok™ Dragonboard® details and requirements.

Ensure all care and maintenance information is available for the building owner.

5. MAINTENANCE

Maglok™ is required to be overlaid with an appropriate protective floor covering (tile, carpet, etc.) or a compatible membrane system.

Where the boards are used in areas prone to water splash, a waterproof membrane or impervious floor covering must be used.

Under normal conditions, Maglok™ requires no maintenance providing that the protective covering has been maintained.

If damage occurs to Maglok™ through up-grade, service maintenance or other physical action the damage can be simply filled and sanded. If necessary (where damage is significant) a damaged section between support members can be simply cut out and replaced with a replacement piece of Maglok™.