



Floor Weight Capacity

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Overview

9.00am	Introductions
9.05am	Background/Process
9.20am	Technical Tips
9.35am	Examples of Equipment Scenarios
9.45am	Q & A

Floor Loading Background



Purpose of Review

1. Undertake a review of the issues relating to the load bearing of floors for clients with heavy equipment
2. Provide advice on management strategies regarding load bearing and develop a project plan to inform operational practice and any criteria changes
3. Include agreed advice to EMS assessors within the complex housing training programme run by David Guest.

Outcome of Working Party

The following mandatory requirement is now in place:

an Advice request is required to be submitted to Accessable by the EMS Assessor when the person has:

- A body weight greater than 140 kilograms
- Uses extra-large/heavy equipment and;
- Is accessing any part of the home with timber flooring i.e., deck, ramp, internal floor.



The logo for 'accessable' features the word in a green, lowercase, sans-serif font. A green arrow curves around the word, starting from the top left and ending at the top right, pointing towards the end of the word.

Floor weight capacity resource

In some circumstances the person and their equipment combined weight may exceed weight capacity for the floor of the home, potentially leading to damage to the floor structure.

Whaikaha – Ministry of Disabled People, with involvement from EMS Providers, have undertaken an independent project and established the following mandatory requirement:

An Advice request is required to be submitted to Accessable by the EMS Assessor when the person has:

- A body weight greater than 140 kilograms and,
- Uses extra-large/heavy equipment and
- Is accessing any part of the home with timber flooring i.e., deck, ramp, internal floor.

The EMS Assessor needs to provide the following information in the advice request:

- Details of the weight of the person,
- Their equipment and footprint size of the equipment (i.e., the width and length of the power chair base) .
- Pictures of the interior and exterior of the home and provide as much information as they are able regarding the age of the home, type of construction (i.e., weatherboard, brick etc.) and any noted issues with the home.

EMS Provider will:

- Investigate the issue raised and provide recommendations for resolution.

Whaikaha will consider recommendations on a case-by-case basis via EMS Panel submission for Genuine and Exceptional Circumstances.

Guidance to EMS Assessors – key information to consider during your visit:

- Where does the person go to inside the home?
- Are there any current visible repairs and maintenance issues?
- How long has the person been using the equipment in the home?
- Are there any floor weakness/damage currently noted from using the equipment in the home?
- Is the home a Kainga Ora property?
- Is the home owned by a private landlord?
- Is the person aiming to live in the home for at least 2-3 years?
- Are other housing modifications likely (i.e., door widening - ramps)?

Useful tips in identifying timber floors:

- Houses built before late 70's are likely to have a timber floor
- Where a home is less than 300mm above ground height it is likely that the home has a concrete floor (but may have a timber deck).
- Where a home has ventilation bricks visible low exterior walls, the home has a timber floor (even if a home has a brick cladding finish).

If you have any questions, please contact the Professional Advisory Team



Submitting an Advice Request



- Weight of Client
- Description of equipment and footprint size: width and length
- Photos of the interior and exterior of the home

Key Considerations

Where areas of the home does the person need to access

Visible maintenance issues

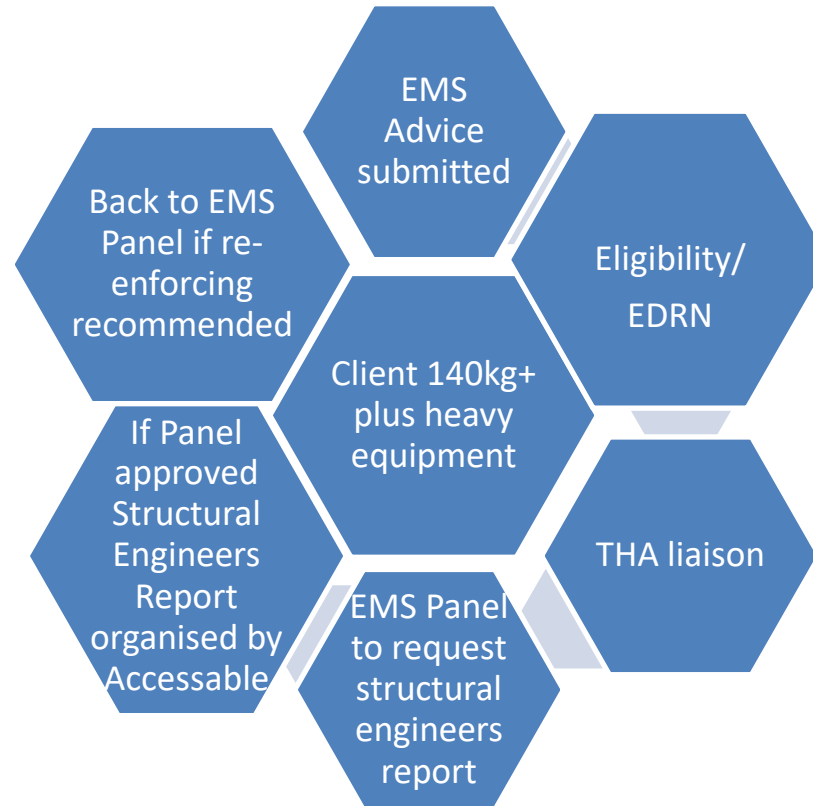
Ownership of the house



What other equipment/housing modifications are likely in the future.



Process



Pragmatic Approach

250kg weight loading in some instances

Discretion of Technical Housing Advisor

Detailed Information



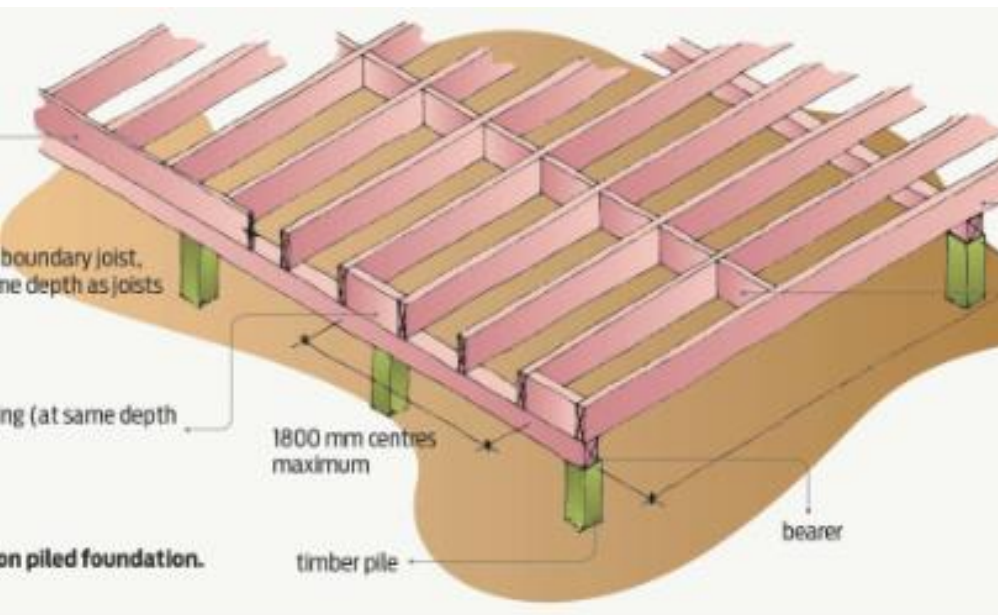


FLOOR LOADS



“Im not a builder!”

- Whether your client is 50kg or 250kg there is still the need to assess the timber floor for any potential dangers to your client in the house that they intend to remain living in.
- Some issues will be obvious others may require a little more ‘sniffing around’.



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STORY TIME

- This is the story of 3 burly blokes; Russell, Rob and Craig. Russell had just been on a diet and had lost 3kg and was very proud of his new trim weight of 75kg. Rob said he had been doing heaps of swimming and was a lean 80kg, Craig proposed a toast as he bet them all at a whopping 95kg.

The friendly conversation and banter continued on for a few minutes until Russell went quiet, realizing that they were all standing within an arc of 1 sq metre and being good at maths he quickly calculated using his fingers that they had a combined weight of 250kg, in a flash he grabbed his NZS 3604 2011 pocket guide and referred to the joist centre tables Russell went pale..... then Screamed 'Spread out' just as the floor groaned and gave way plummeting all 3 of them through the timber sub floor.....







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LET'S BE PRAGMATIC

- 250KG COMBINED CLIENT/EQUIPMENT WEIGHT IS THE RED FLAG POINT WHERE ACCESSABLE WOULD WANT TO DO FURTHER INVESTIGATION ON THE SUITABILITY OF A TIMBER FLOOR AND SUBFLOOR.
- OUR CALCULATIONS WILL BE RESTRICTED TO 1 SQM



FLOOR AND SUBFLOOR ISSUES



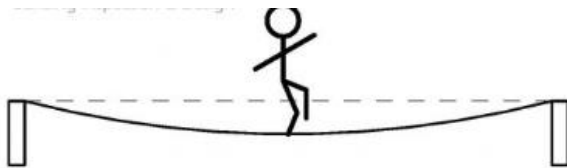
Bearer and/or joist damage/deterioration

CAUSES

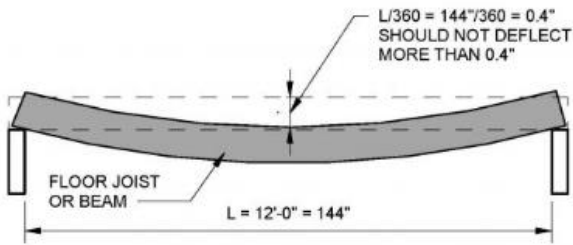
- ↓ Timber sizes are too small for the span/loading
- ↓ Untreated or inadequately treated timber
- ↓ Rotted timber
- ↓ Borer infestation in timber
- ↓ Excessive notching or drilling through the timber for pipes or wiring
- ↓ Floors have been overloaded



SIMPLE INVESTIGATION



TIGHT ROPE DEFLECTION



ASSESS THE QUALITY OF THE FLOOR **DO A WALKABOUT**

- ARE THERE AREAS OF FLOOR DETERIORATION? ARE THERE AREAS OF THE FLOOR THAT ARE SOFT OR SPUNGY? THESE AREAS ARE MORE LIKELY TO BE IN AREAS SUCH AS BATHROOMS, LAUNDRIES AND ADJACENT TO HOT WATER CYLINDERS
- IS THERE EXCESSIVE DEFLECTION OR AREAS OF THE FLOOR THAT ARE EXCESSIVELY OUT OF LEVEL?

COMPROMISED STRUCTURES



Damage to floorboards



Borer in native and untreated timber



Wet floors leading to failure of chipboard

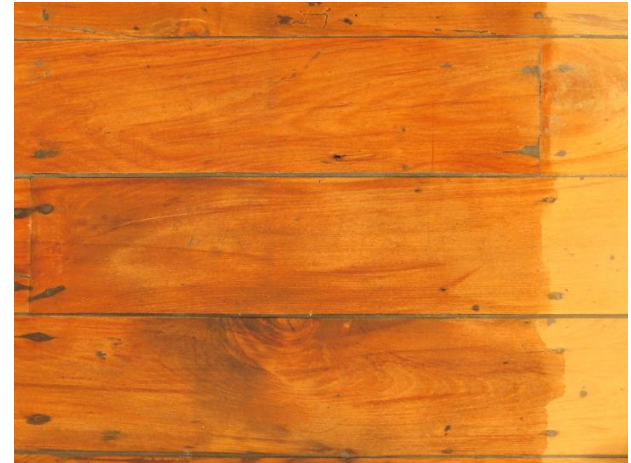


Borer or moisture causing failure in floor joists



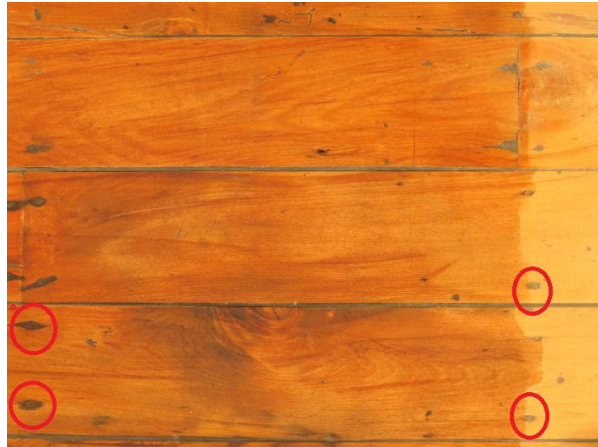
Watertight issues (leaky homes)

EASY INFORMATION GATHERING



NAIL LINES PROVIDE FLOOR JOIST CENTERS

CHECK JOIST CENTRES



SUB FLOOR HATCH



THE OBVIOUS



- LACK OF HOUSE MAINTENANACE
- LEAKS AND POOR SITE CONDITIONS
- POOR DRAINAGE ON SITE
- HEIGHT OF SUB FLOOR



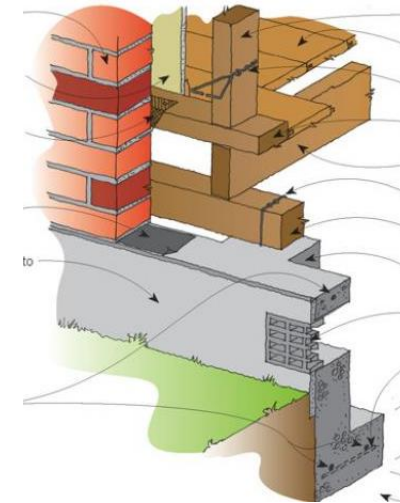
Villa 1880s-WW1

Bungalows WW1-1920s



- ✓ Undersized structural members
- ✓ Insufficient sub floor ventilation
- ✓ Damp sub floor
- ✓ Borer issues in native timber
- ✓ Many have been renovated and upgraded

STATE HOUSE 1940- late 60S



- ✓ Borer infestation in untreated or native timber
- ✓ Undersize structural members
- ✓ Lack of sub floor ventilation combined with a wet site
- ✓ Good quality native T&G Flooring

ART DECO 1930s



- ✓ Insufficient sub floor ventilation
- ✓ Insufficient ground clearance
- ✓ Borer in native timber

1970s



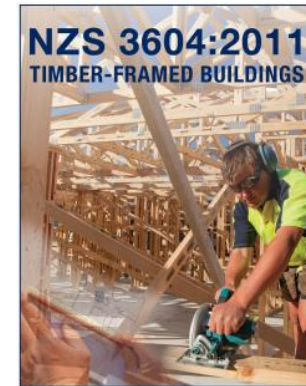
- ✓ Insufficient ground clearance
- ✓ Insufficient sub floor ventilation
- ✓ These issues may cause cupping/sagging of chipboard flooring
- ✓ Chip board and deterioration issues caused by moisture

WATER TIGHT ISSUES 1988-2004



- ✓ Watertightness issues
- ✓ Untreated timber
- ✓ Often on concrete floor

Modern Architecturally design House



The Standard provides methods and details for the design and construction of timber-framed structures not requiring specific engineering design. NZS 3604:2011 is now cited as an Acceptable Solution under the New Zealand Building Code B1/AS1.

- ✓ New material
- ✓ Modern Construction methods
- ✓ Treated timber
- ✓ Complies with NZS 3604



Examples of Equipment Scenarios

Consideration During Advisory



EMS Advice - Person A

Background/ Eligibility:

- Person A is a 49 year old man with diagnosis of heart failure, respiratory failure and obesity.
- Funding support confirmed under LTSCHC.

Essential Disability Related Need:

Person A is:

- Unable to mobilise in his home because of weakness and legs giving way after a few seconds of standing.
- Unable to transfer in/out of standard bed. He sleeps on a sofa in the lounge, with his legs elevated on a large ottoman.
- Unable to access the toilet and bathroom because he is too wide to fit through the doorways safely.
- Hospital bed is required to support safe transfers and bed mobility.



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EMS Advice Review - Person A

Considerations under the *New Whaikaha Floor weight capacity criteria*:

- Client's weight: **Approx. 260kg (>140kg)**
- Weight of equipment being considered
 - Bariatric Bed Package: Bed (209kg) + mattress (22kg) + Bed rails (10kg) = **Approx. 241kg (Heavy Equipment)**
- Type of Flooring at home:
 - **Wooden flooring, Kāinga Ora home**

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Considerations During Advisory

Further considerations:

- Combined person and equipment weight: **501kg**
- Type of equipment:
 - Size and dimension
 - Floor loading with consideration of 250kg/m² guidance
 - Consider static load or moving load
- Integrity of flooring with photos and descriptions provided by the EMS Assessor
- Seek guidance from Technical Housing Advisor (THA) who will provide further considerations

Considerations During Advisory

- Potential site visit if required guided by THA.
- May suggest approaching Kāinga Ora housing to consider Structural Engineering Review to support further evaluation.
 - If it's not Kāinga Ora home, process will be seeking EMS Panel Review to consider a Structural Engineering Review.
- Based on Structural Engineering Review will advise and proceed accordingly.
- Throughout the Advisory process, EMS Advisor will work closely with EMS Assessor to identify a suitable solution/resolution



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Service Request Review – Person B

Background/ Eligibility:

- Person B is a 66 year old woman with bilateral Osteoarthritis in her knee joints and described by the EMS Assessor as morbidly obese at a weight of 161kg.
- Funding support confirmed under DSS.

Essential Disability Related Need:

Person B is:

- Unable to independently transfer on/off her existing lounge furniture and dining chairs due to the significant pain and discomfort with her knee joints.
- Requiring a suitably sized riser recliner armchair to enable independent chair transfers.



Service Request Review – Person B

- EMS Advisor reviews EMS Rationale Form and will enquire EMS Assessor if further information is required in relation to Floor weight capacity criteria.

Considerations under the *New Whaikaha Floor weight capacity criteria*:

- Client's weight: **Approx. 161kgs (>140kg)**
- Weight of equipment being considered
 - Rise and Recliner Chair: **Approx. 72kg (Heavy Equipment)**
- Type of Flooring at home:
 - **Wooden flooring**



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Considerations During Review

Further Considerations and Next Step:

- Combined person and equipment weight:
233kg
- Based on initial consideration of these criteria will then consider if EMS Advice is required.
- If EMS Advice is required, will advice accordingly and Service Request will be put on hold or withdrawn for resubmission post EMS Advice completion.

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Examples of Heavy Equipment

- Power Wheelchairs
- Beds
- Rise and Recliner arm chair
- Hoist (heavier bariatric rated)
- Shower trolleys

Note: Whilst some equipment are not necessarily heavy e.g. bariatric shower stools, if the person is close to or over 250kg, will need to consider the combined person and equipment weight, and may be a good idea to seek EMS Advice.



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Summing up...

The Professional Advisory team are here to support your decision making with consideration of the Whaikaha Flooring Weight Capacity criteria.

Through the EMS Advice process, we can access tools such as THA Advice and Structural Engineering review to guide decision making. The aim is to identify a safe and appropriate solution with sustainable outcome.



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