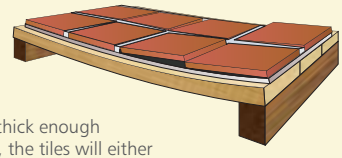
PROBLEM 2
Tiling onto wood

Timber floors and ceramic tiles are not natural bedfellows - tiles are inherently rigid and brittle whereas timber floors are flexible. There are many types of wooden floor but in principle the challenges that they present to the tiler are all the result of this mismatch. There are a number of contributing sources of movement in timber floors which need to be considered.

1 General deflection due to the applied load *(bounce)*



The floor will deflect according to the load applied and the stiffness of the structure (joint size, spacing etc).

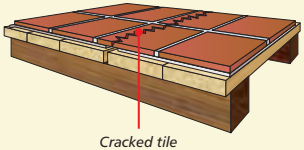
If the adhesive is not flexible or laid thick enough to absorb the amount of movement, the tiles will either delaminate or crack.

Large tiles will exacerbate the deflection across each tile's width.

2 Localised movement at unsupported board joints *(creak)*

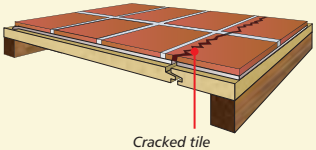
Any inadequately supported joint will cause a highly localised movement which will crack the tile. Joints may be supported by joists, noggings, or each other's tongues and grooves.

Non-tongue and grooved timber



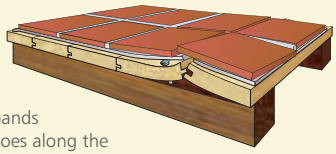
Cracked tile

Unsupported tongue and grooved timber



Cracked tile

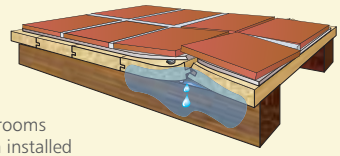
3 Temperature related expansion and contraction



Wood expands and contracts with changes in ambient temperature at a different rate to mortars, ceramics and stones.

As a further complication, timber expands much more across the grain than it does along the grain (this is not really a factor with manufactured boards such as plywood).

4 Moisture/humidity related expansion and contraction



Wood swells if it gets wet even with changes in atmospheric humidity.

This can be a problem in potentially wet areas such as showers and bathrooms and also if the wood is not dry when installed (e.g. if it has been kept outside).

SOLUTION 2.1
Overboard with plywood or tile backer-board

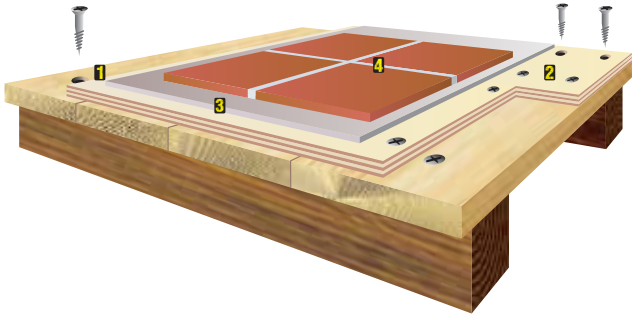
The most secure system for tiling wooden floors is to screw fix another layer of boarding over the top of the original timber. This increases the rigidity of the floor, prevents localised movement and if a water-resistant tile backer board is used, virtually eliminates moisture-related movement. Screwing the boards down also helps prevent any pullout of fixings.

Stage 1: Assess and prepare the floor

Make sure the floor will be capable of supporting the expected load with minimal deflection. It must be stable, well supported, ventilated underneath and level. Brace any areas that need extra support with noggings between the joists. Any defective boards should be cut out and replaced. Existing boards should be screwed down to joists with two screws at each end and another two wherever they cross joists.

Stage 2: Fix the over-boarding

For small floors with no noticeable deflection 9mm WBP plywood can be used for over-boarding. If there is some limited deflection, a minimum of 15mm WBP plywood or equivalent tile backer board should be used. Prime the back and edges of plywood with **weber PR360**. Lay the boards so that the joints do not coincide with the joints in the existing timber and leave gaps of approximately 2mm between boards and 5mm at the perimeter for expansion. Screw the plywood or tile backer board to the floorboards every 200 - 300mm using corrosion resistant screws. Fill the gaps between boards and the perimeter with **weber.joint silicone** sealant. If there is still noticeable movement in the floor, another layer of plywood or tile backer board may be needed.



Stage 3: Fix the tiles

Fix the tiles into a solid bed of **weber.set rapid SPF** at least 3mm thick. Leave joints at least 3mm wide for grouting and make provisions for movement.

Stage 4: Grout

Leave the adhesive to set for 2 to 3 hours. Fill the joints between tiles with **weber.joint wide flex** or **weber.joint pro**. Use **weber.joint silicone** sealant to fill the perimeter movement joints.

Priming:
weber PR360

Tiling:
weber.set rapid SPF

Grouting:
weber.joint wide flex or **weber.joint pro** & **weber.joint silicone**

For detailed instructions, please refer to the relevant product data sheet. For further information, please contact our Technical Helpline on 01525 722110 or ***www.loveweber.co.uk***

SOLUTION 2.2
Tile directly onto tongued and grooved boards or sheets

It is possible to tile directly onto tongued and grooved wooden floors by using a highly polymer-modified 2-part adhesive, providing that the floor is rigid enough and the tongued and grooved joints provide effective support. If the tiles are larger than approximately 400mm square, over boarding is recommended (see previous page).

Stage 1: Assess and prepare the floor

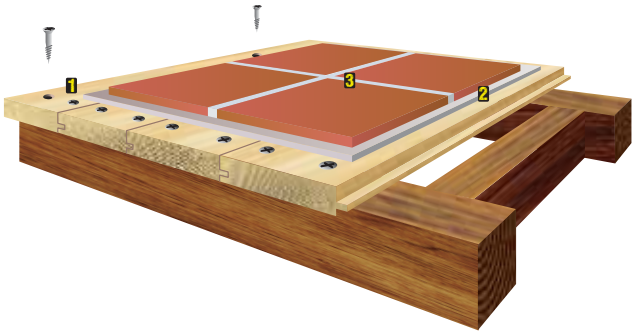
Make sure that the floor will be capable of supporting the expected load with minimal deflection. It must be stable, well supported, ventilated underneath and level.

Ensure that each board is effectively supported by its adjacent boards without localised movement. Replace any defective boards and insert noggings between the joists if necessary. Screw the boards to the joists using two screws per board at every joist and prime with **weber PR360**.

Stage 2: Fix the tiles

Fix the tiles into a solid bed of **weber.set rapid plus** & **weber AD250** at least 5mm thick. It may be necessary to back butter the tile to achieve this.

Leave joints at least 3mm wide for grouting and make adequate provision for movement (especially around the perimeter and dividing large areas into bays).



Stage 3: Grout

Leave **weber.set rapid plus** & **weber AD250** to set for 2 or 3 hours. Fill the joints between the tiles with **weber.joint wide flex** or **weber.joint pro**. Use **weber.joint silicone** sealant to fill the perimeter movement joints.

Priming:
weber PR360

Tiling:
weber.set rapid plus & **weber AD250**

Grouting:
weber.joint wide flex or **weber.joint pro** & **weber.joint silicone**

For detailed instructions, please refer to the relevant product data sheet. For further information, please contact our Technical Helpline on 01525 722137 or www.loveweber.co.uk

SOLUTION 2.3
Tile directly onto plywood

If the floor consists of sheets that do not support each other, it is necessary to ensure that each edge is fully supported underneath. If the tiles are small (not more than 400 x 400mm) **weber.set rapid SPF** is adequately flexible. For larger tiles use **weber.set rapid plus** & **weber AD250**.

Stage 1: Assess and prepare the floor

Make sure that the floor will be capable of supporting the expected load with minimal deflection. It must be stable, well supported, ventilated underneath and level.

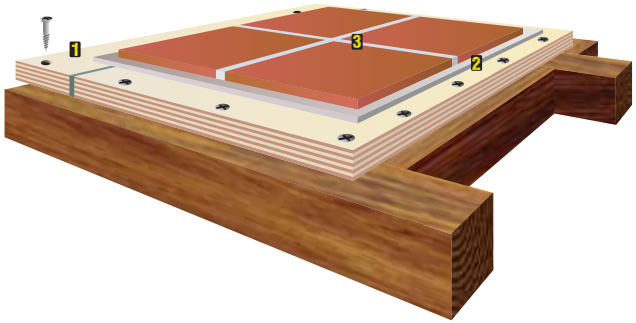
The sheets should be of exterior grade plywood and at least 18mm thick. It may be necessary to increase the thickness if heavy loads are anticipated or if the joists are spaced more widely than normal. Replace any defective sheets and fit noggings between the joists beneath any unsupported sheet edges. Prime the back and edges of plywood with **weber PR360**.

Screw the sheets to the joists/noggings every 200 - 300mm, leaving 2mm to allow for expansion. Fill the gaps with **weber.joint silicone** sealant to prevent them being filled with tile adhesive when fixing the tiles.

Stage 2: Fix the tiles

Fix the tiles into a solid bed of **weber.set rapid SPF** at least 5mm thick. It may be necessary to back butter the tile to achieve this.

Leave joints at least 3mm wide for grouting and make adequate provision for movement (especially around the perimeter and dividing large areas into bays).



Stage 3: Grout

Leave **weber.set rapid SPF** to set for 2 or 3 hours. Fill the joints between the tiles with **weber.joint wide flex** or **weber.joint pro**. Use **weber.joint silicone** sealant to fill the perimeter movement joints.

Priming:
weber PR360

Tiling:
weber.set rapid SPF

Grouting:
weber.joint wide flex or **weber.joint pro** & **weber.joint silicone**

For detailed instructions, please refer to the relevant product data sheet. For further information, please contact our Technical Helpline on 01525 722110 or www.loveweber.co.uk