

INSTALLATION GUIDE

Tekwarm Routed Chipboard Panels Over Joists with UFH

MATERIALS NEEDED:

- Tekwarm Routed Chipboard Panels (22mm)
- UFH pipes (12mm)
- Fixings (screws / nails suitable for fixing floorboards / overboard)
- UFH manifold and pressure testing kit
- Overlay boards (6mm for 400mm joist centres, 9mm for 600mm joist centres) or Cement-based Overlay boards (must be structural, verify with the manufacturer)
- Conduit for insulating pipework running between joists
- Adhesive (if specified by the panel manufacturer)
- Insulation (if required)
- Tools: Tape measure, circular saw, power drill/driver, utility knife, pipe cutter, pressure testing pump, spirit level, and safety equipment

INSTALLATION OVER JOISTS with overlay board finish

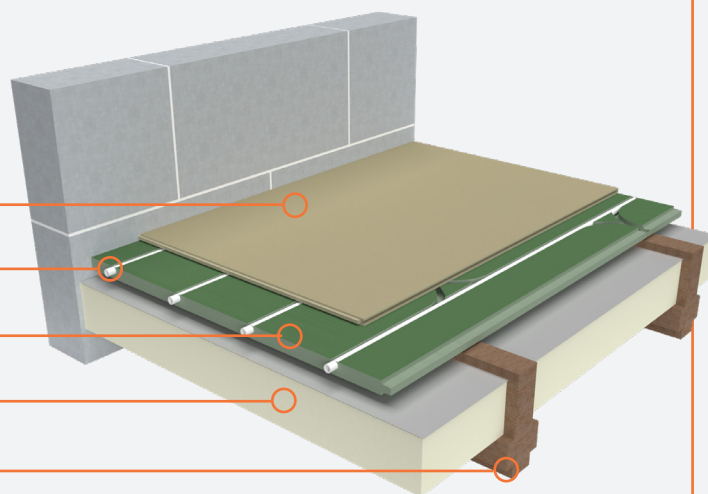
overlay board

ufh pipes

tekwarm routed chipboard panels

insulation (pir or mineral wool)

joists





PRE-INSTALLATION STEP:
obtain a professional design layout

1. **Consult the Manufacturer:** Before starting the installation, consult with the manufacturer (Tekwarm) to obtain a professional design layout for your UFH system. This design will ensure accurate heat outputs based on the following factors:
 - **Materials:** The type of UFH boards and overlay boards.
 - **Pipe Spacing:** The correct spacing of the UFH pipes to ensure even heat distribution.
 - **Heat Source:** The compatibility of your heat source with the UFH system.
 - **Floor Finish:** The type of floor finish that will be used on top of the overlay boards.
2. **Review the Design:** Carefully review the provided design layout and ensure all details are understood and can be implemented on-site.



STEP 1:
prepare the subfloor

1. **Inspect Joists:** Ensure joists are level, evenly spaced (400mm or 600mm centres), and structurally sound. Joists must be capable of supporting the load of the routed panels, UFH system, and floor finishes.
2. **Clean Surface:** Remove any debris or obstacles from the joists.
3. **Temporary Boards:** Loosely place temporary boards to walk on and work from.



STEP 2:
lay insulation (if required)

1. **Install Insulation:** Insulate any ground floor voids and areas above unheated spaces with PIR or mineral wool insulation to ensure the best performance of the underfloor heating and minimize heat loss. Lay insulation between joists if required to improve thermal efficiency. Ensure it fits snugly without gaps.



STEP 3:
prepare for manifold installation

1. **Check CAD Drawings:** Confirm the design is correct to the actual room space and dimensions.
2. **Fit the Manifold:** Referring to the drawings supplied, fit the manifold in the correct position.
3. **Flow and Return Pipe Run:** Investigate/confirm the flow and return pipe run back route from room to manifold, checking if floor penetration point is correct on the drawings. Temporarily remove floorboards in any rooms that the flow and return pipework runs through to provide access to install the pipework.

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STEP 4:
lay tekwarm routed chipboard panels

1. **Measure and Cut:** Measure the room and cut chipboard panels to fit, ensuring cuts are straight and panels fit tightly together. Leave a 10mm gap at the walls.
2. **Support at Edges:** Ensure all edges of the chipboard panels are fully supported by joists or noggins (additional supporting timbers).
3. **Position the First Board:** Position the first board and ensure it is aligned correctly to the wall/joists as necessary. Use a straight edge, builder's square, and tape measure to assist with setting out. Remember to leave a 10mm gap at the outer edges.
4. **Mark and Place the Board:** Mark the position of the board and place it to one side.
5. **Apply Adhesive:** Apply adhesive to the top surface of the joist and replace the board in the previously marked position.
6. **Fix the Board:** Secure the board using the screws provided.
7. **Measure and Mark Next Board:** Measure and mark the next board ensuring the joints are arranged in a brick bond type, staggered pattern.
8. **Align Boards:** Use a straight edge to ensure all boards are properly aligned with each other.
9. **Cut the Board:** Cut the board to the required length.
10. **Clear Sawdust:** Tap the board to help clear the sawdust from the channels.
11. **Place and Check Alignment:** Place the board to check correct size and alignment, paying close attention to the alignment of the channels.
12. **Apply Adhesive to Joints:** Apply adhesive to the tongue and groove joint only when the boards will connect. Be careful not to apply the glue too close to the pipe channels, overspills will need to be cleaned out prior to installing the pipe.
13. **Apply Adhesive to Joists:** Apply adhesive to the top of each joist, where the board will be laid.
14. **Replace and Tap the Board:** Replace the board and ensure the tongue and groove joints are fully closed. Use a scrap block of timber and a mallet to tap the board to assist if required, taking care not to damage the tongue or groove.
15. **Fix the Board Down:** Fix the board down as previously done and remember to leave a 10mm gap at the wall edges.
16. **Continue Installing Boards:** Continue to install the boards as shown until the next row is complete. When starting each of the subsequent rows, it is important to ensure that the board end joints are staggered, preferably in a half-lap brick bond pattern.
17. **Changing Joist Direction:** If the joists change direction, the boards can be rotated and aligned to allow pipework to run from one board to another without the need to route the boards.
18. **Flow and Return Pipework:** At the point where the flow and return pipework penetrates the floor, an access point will need to be left, either in the room or just outside in the adjacent room or via the floor below. This is to facilitate the installation of the flow and return pipework through the floor void.

5**STEP 5:
lay ufh pipes**

1. **Follow the Design Layout:** Lay the 12mm UFH pipes into the routed grooves of the chipboard panels exactly as specified in the professional design layout. Ensure correct spacing and pipe routing.
2. **Run Pipes Between Joists:** In some cases, UFH pipework may need to run between joists to reach the desired loop configuration. Ensure that the pipes are well-protected and supported to prevent damage or kinking. It is recommended to thermally insulate the pipework running between joists with conduit to prevent heat loss.
3. **Drill Holes:** If necessary, drill holes through joists to run the UFH pipes between them. Ensure the holes are properly sized and positioned to avoid weakening the joists.
4. **Install Pipes:** Lay the 12mm UFH pipes into the routed grooves of the chipboard panels. Cut the pipes as needed with a pipe cutter, ensuring clean and straight cuts.
5. **Connect to Manifold:** Connect the pipes to the UFH manifold according to the manufacturer's instructions. Make sure the connections are secure.
6. **Secure Pipes:** Ensure pipes are securely seated in the grooves and do not protrude above the panel surface.

6**STEP 6:
pressure test ufh system**

1. **Prepare for Testing:** Close all manifold valves and connect the pressure testing pump to the system.
2. **Test Pressure:** Pressurize the system to the recommended pressure (typically around 4-6 bar) and maintain this pressure for at least 24 hours. If pressure testing with air, the test should be at a maximum of 1 bar and maintained for 1-2 hours.
3. **Check for Leaks:** Inspect all connections and pipes for leaks. If any leaks are found, depressurize the system, fix the leaks, and retest.
4. **Release Pressure:** Once the system passes the pressure test, release the pressure according to the manufacturer's instructions.

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STEP 7: install overlay boards

1. **Select Overlay Board:** Use a minimum of 6mm overlay boards for joist centres at 400mm and 9mm overlay boards for joist centres at 600mm. Cement-based overlay boards can also be used, provided they are structural. Verify this with the manufacturer.
 2. **Measure and Cut:** Measure and cut overlay boards to fit the room dimensions.
 3. **Lay Overlay Boards:** Lay the overlay boards over the routed insulation boards and UFH pipes, ensuring they are well-aligned and tightly fitted.
 4. **Fix Overlay Boards:** Secure the overlay boards with screws or nails, ensuring fixings do not penetrate the UFH pipes beneath.
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STEP 8: final inspection

1. **Check for Levelness:** Use a spirit level to ensure the entire floor is level and there are no raised edges or gaps.
 2. **Ensure Fixings Are Secure:** Verify all screws are properly countersunk and the floor is stable.
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STEP 9: clean up

1. **Remove Debris:** Clean up any debris and tools from the installation area.
2. **Final Check:** Perform a final inspection to ensure all work has been completed to a high standard and all materials have been used correctly.

IMPORTANT NOTES:

- Floor Finishes:** When installing floor finishes above the UFH system, always check with the floor finish manufacturer for any specific stipulations for overlaying over a UFH floor. Follow any guidance provided to ensure compatibility and performance.
- Commissioning UFH System:** For systems that are overlaid with Tekcem 550 screed, ensure that the UFH system is commissioned in line with the guidance set out in BS1264, BS8203, and BS8204. The system should be commissioned prior to the application of floor finishes. Refer to specific commissioning details that may be available from Tekcem.
- Solid Substrate Importance:** Ensuring a solid and well-fixed substrate is crucial to prevent screed cracking or system squeaking. The subfloor must be securely fixed and structurally sound before installation.

SUMMARY

By following these steps, obtaining a professional design layout from the manufacturer, and using the recommended overlay board thicknesses or verified structural cement-based overlay boards, you will ensure a successful and durable installation of 22mm routed chipboard panels with a UFH system on your first or upper floor. This approach guarantees accurate heat outputs and optimal performance of your UFH system, while ensuring the structural integrity and stability of the flooring system.

TEKWARM

**TEKWARM
CHIP-UFH
BOARD**

Moisture resistant routed chipboard, available standard, foiled, or bonded to additional thermal or acoustic insulation.

Our Chip-UFH Board is highly conductive which allows for an even spread of heat throughout the floor.

A 6mm or 9mm plywood (or Tekwarm Construction Board) should be laid over the top of the routed chipboard depending on the joist spacing and required floor finish.

The board size is 2400mm x 600mm x 22mm, being grooved on one face as required to suit 12mm diameter underfloor heating pipes, with radius returns as standard.

Other routed pipe layouts and patterns are available.

INSTALLATION
Tekwarm Chip-UFH Foiled Board is typically installed directly onto floor joists (usually insulated inbetween), utilising standard chipboard screws and joint adhesive.

FINISHING
A Tekwarm Overlay Board or suitable plywood should be applied prior to the application of any floor finishes.
Tekwarm Overlay Board is installed as a floating floor, plywood should be installed using suitable fixings.
Laminates, hardwood flooring and carpets should be applied using a suitable underlay as per manufactures instructions.

SUITABLE FOR
Tekwarm Chip-UFH Foiled Board is suitable for new build or retro fit installations, and the standard pattern board is normally available from stock.

TFTWRUCUFH02ZV1

TEKWARM

**TEKWARM
CHIP-TFF
UFH FOILED
BOARD**

Moisture resistant routed chipboard, available Top Foil Faced (TFF) for better heat diffusion.

Our Chip-TFF UFH Foiled board has a highly conductive foil facing across its surface (not within the grooves) for an even spread of heat across the board face.

A 6mm or 9mm plywood (or Tekwarm Construction Board) should be laid over the top of the routed chipboard depending on the joist spacing and required floor finish.

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Other routed pipe layouts and patterns are available, further details upon request.

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Tekwarm Chip-TFF UFH Foiled Board is typically installed directly onto floor joists (usually insulated inbetween), utilising standard chipboard screws and joint adhesive.

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