

2026

Installation Guide for 22mm Routed Chipboard Board Applications 2400mm x 600mm Boards for 12mm UFH Pipe



Designed to Heat. Built to Last

Tekwarm

01/07/2026

INSTALLATION GUIDE FOR ROUTED EPS BOARD APPLICATIONS

CONTENTS

Installation Guide for Routed EPS Board Applications	1
2400mm x 600mm Boards for 12mm UFH Pipe.....	2
1. Introduction	2
2. Important Notes Before Starting	3
3. Health and Safety	3
4. Tools and Equipment Required.....	4
5. Joist and Structural Checks.....	4
6. Safe Access Over Exposed Joists	5
7. Insulation Between Joists.....	5
8. Existing Deck or Concrete Substrate Checks.....	6
9. Moisture and Site Condition Checks	7
10. Floor Build-Up and Level Checks	7
11. Setting Out the Installation.....	7
12. Manifold Positioning and Mounting	8
13. Routed Chipboard Board Installation	9
14. Fixing Routed Chipboard Boards Over Joists.....	9
15. Fixing Routed Chipboard Boards Over Existing Timber Decks	10
16. Fixing Routed Chipboard Boards Over Concrete or Screed Substrates	10
17. Board Joints, Edges and Cut Sections	11
18. Pipe Handling and Storage	11
19. Laying 12mm Pipework into the Routed Chipboard Boards.....	12
20. Pipe Bends, Returns and Manifold Routes	12
21. Maintaining Pipe Spacing and System Layout	13
22. Pipe Spacing and No-Pipe Zones	14
23. Overboarding the Routed Chipboard System.....	14
24. Floating Overboard Systems	15
25. Fixing Precautions During Overboarding.....	16
26. Manifold Connections.....	16
27. Filling the System	16
28. Pressure Testing Before Overboarding	17
29. Pressure Test Record	18
30. Pre-Overboard Inspection Checklist	18
31. Pre-Floor Finish Checklist	19
32. Commissioning and Initial Heat-Up	19

33. Floor Finish Considerations.....	20
34. Common Installation Mistakes to Avoid	20
35. Tekwarm Routed Chipboard Installation Sequence	21
36. INSTALLER HANDOVER CHECKLIST	22
37. Disclaimer	22

2400MM X 600MM BOARDS FOR 12MM UFH PIPE

Designed to Heat. Built to Last.

1. INTRODUCTION

The Tekwarm Routed Chipboard Underfloor Heating System is a warm water UFH overlay, and structural deck system designed using **22mm routed chipboard boards**.

The boards are typically supplied in **2400mm x 600mm** format and are routed to receive **12mm Tekwarm UFH pipe**. The routed channels allow pipework to sit within the board depth before the system is covered with a suitable overboard, floor deck or final floor build-up.

This system can be installed:

- Directly over existing timber joists, with suitable insulation installed between the joists
- Onto an existing timber deck, where the deck is structurally sound and level
- Onto an existing concrete or screed substrate, where the surface is suitable, level and properly prepared

Where installed over joists, the joists must be structurally suitable, correctly spaced and capable of supporting the complete floor build-up.

Where installed over an existing deck or concrete substrate, the receiving surface must be clean, dry, stable and level enough to support the routed chipboard boards. Where the substrate is not level enough, a levelling screed or suitable levelling system may be required before installation.

The system typically includes:

- Tekwarm 22mm routed chipboard boards
- Board size: 2400mm x 600mm
- Tekwarm 12mm UFH pipe
- Suitable fixings for timber joists or deck installation
- Suitable insulation between joists where applicable
- Suitable overboard system where required
- Chipboard, OSB, plywood or cement board overlay where specified
- Appropriate glue / adhesive where required
- Manifold assembly
- Pipe conduit / protection sleeves where required
- Pressure testing equipment

This guide covers the key stages of installation, including substrate checks, joist checks, insulation between joists, board fixing, pipe installation, over boarding, manifold connection, filling, pressure testing and final floor finish considerations.

This guide should be read alongside the Tekwarm UFH design, board layout, structural design information, chipboard manufacturer's guidance, overboard manufacturer's instructions, floor finish requirements and all relevant British Standards and Building Regulations.

2. IMPORTANT NOTES BEFORE STARTING

Before installation begins, check that:

- The Tekwarm UFH design has been reviewed and understood.
- The manifold location has been agreed.
- The routed chipboard board layout matches the UFH design.
- The correct 22mm routed chipboard boards have been supplied.
- The board size is 2400mm x 600mm.
- The system is designed for 12mm pipe.
- The correct 12mm Tekwarm UFH pipe has been supplied.
- The installation method has been confirmed: over joists or over an existing deck/substrate.
- The joists are structurally suitable where boards are installed directly over joists.
- Insulation has been specified between joists where applicable.
- The existing deck or concrete substrate is level enough where boards are installed over a deck.
- A levelling screed or levelling system has been allowed for where required.
- The board fixing method has been confirmed.
- The overboard type has been confirmed.
- The overboard fixing and gluing method has been confirmed.
- The final floor finish has been reviewed for UFH suitability.
- The total floor build-up has been checked.
- Door thresholds and floor level transitions have been reviewed.
- Movement joints, service penetrations and no-pipe zones have been considered.
- The area is dry, weather-tight and suitable for installation.

Do not install the system if the boards cannot be fully supported, held rigidly in place or covered with a suitable floor build-up. Routed chipboard is not there to solve a bad substrate.

3. HEALTH AND SAFETY

Installation should only be carried out by competent persons.

Always wear appropriate PPE, including:

- Safety boots
- Gloves
- Eye protection
- Knee protection
- High-visibility clothing where required
- Dust protection when cutting chipboard
- Hearing protection when cutting or drilling boards

Chipboard cutting creates dust. Cutting should be controlled, and the working area should be kept clean.

Where boards are being installed over open joists, safe access must be provided. Do not walk directly on exposed joists unless a suitable safe working platform has been installed.

Temporary crawl boards or suitable sheet materials should be used to create safe access during installation.

Keep the work area clean and free from trip hazards. UFH pipework, routed boards, tools, offcuts and fixings can create hazards during installation.

Avoid unnecessary traffic over installed pipework before the system is covered.

4. TOOLS AND EQUIPMENT REQUIRED

Typical tools and equipment required include:

- Pipe decoiler
- Pipe cutter suitable for 12mm UFH pipe
- Tape measure
- Marker pen
- Straight edge
- Circular saw / jigsaw / handsaw suitable for chipboard
- Drill / driver
- Suitable screws for joists, timber deck or substrate fixing
- Suitable fixings for concrete or masonry substrates where applicable
- Board adhesive / glue where required
- Suitable glue for floating or overboard systems where required
- Spanners / manifold connection tools
- Pressure test pump
- Hose connections
- Water supply for filling
- Temporary pipe protection sleeves / conduit
- Soft broom and vacuum
- Temporary access boards where working over exposed joists
- Suitable tools for installing overboard systems

The exact tools required will depend on whether the system is installed over joists, timber deck or concrete/screed substrate.

5. JOIST AND STRUCTURAL CHECKS

Where Tekwarm routed chipboard boards are installed directly over joists, the joists must be inspected before installation.

The joists should be:

- Structurally sound

- Correctly designed for the intended loading
- Correctly spaced
- Level and aligned
- Free from significant damage
- Free from excessive deflection
- Securely fixed
- Dry and free from rot or decay
- Suitable to receive the proposed floor build-up
- Capable of supporting the routed chipboard, overboard, floor finish, furniture and imposed loads

The Tekwarm routed chipboard board must be adequately supported. Joist centres and board orientation must be suitable for the board type, thickness and intended loading.

Where engineered joists are used, fixing, drilling, notching or service routing must follow the joist manufacturer's guidance.

Any damaged, cracked, wet, decayed, undersized or overloaded joists must be assessed before installation continues.

Structural suitability must be confirmed by the project designer, structural engineer, builder or competent responsible person.

6. SAFE ACCESS OVER EXPOSED JOISTS

Where the existing floor deck has not yet been installed, exposed joists create a fall and trip hazard.

Before work begins, install a temporary safe walkway or working platform.

Safe access should be provided for:

- Installer movement
- Carrying routed chipboard boards
- Installing insulation
- Laying boards
- Fixing boards
- Installing pipework
- Connecting pipework
- Inspection and pressure testing

Temporary access boards must be stable and suitable for the loading.

Do not stand on unsupported routed chipboard boards before they are properly fixed.

Do not leave partially fixed boards as a walking surface unless they are stable, supported and safe.

7. INSULATION BETWEEN JOISTS

Where the routed chipboard boards are installed over timber joists, insulation should be installed between the joists to reduce downward heat loss and improve system performance.

The insulation type should be confirmed by the project specification and may include:

- Mineral wool insulation
- Rigid PIR insulation
- Rigid EPS insulation
- Rigid XPS insulation
- Other suitable between-joist insulation systems

Insulation should be installed:

- Between joists
- Tight to the joist sides where possible
- Without significant gaps
- Without sagging
- At the correct depth
- Fully supported where required
- Clear of the routed board fixing zones
- In accordance with the insulation manufacturer's guidance

Where mineral wool is used, it should be supported so that it does not slump away over time.

Where rigid insulation is used, it should be cut neatly and installed without large gaps.

The insulation should not interfere with the correct installation, fixing or support of the routed chipboard boards.

8. EXISTING DECK OR CONCRETE SUBSTRATE CHECKS

Where the routed chipboard boards are installed over an existing timber deck, concrete slab or screed substrate, the receiving surface must be inspected.

The substrate should be:

- Structurally sound
- Clean and free from debris
- Dry
- Stable
- Flat and level enough to fully support the boards
- Free from sharp projections
- Free from oil, grease, dust, plaster residue, laitance, paint or contaminants
- Free from loose or friable material
- Capable of supporting the finished floor build-up
- Suitable for the intended fixing method
- Suitable for the final floor finish

The boards must be fully supported across their full area. Voids, rocking or unsupported sections can lead to board movement, pipe movement, noise, floor finish failure and reduced system performance.

Where the substrate is not level enough, a suitable levelling screed, smoothing compound or levelling system may be required before the routed chipboard boards are installed.

Do not install routed chipboard over an uneven substrate and hope the fixings will pull it flat.

9. MOISTURE AND SITE CONDITION CHECKS

Chipboard is moisture-sensitive and must be protected from excessive moisture before, during and after installation.

Before installation, check that:

- The building is weather-tight.
- Wet trades have been managed.
- The substrate is dry.
- Boards have been stored correctly.
- Boards are not swollen, damaged or damp.
- The area is suitable for timber-based board installation.

Boards should be stored flat, dry and protected from weather.

Do not install wet, swollen or damaged chipboard boards.

Where installation is over concrete or screed, moisture conditions must be suitable for timber-based board installation. A suitable damp proof membrane or moisture control strategy may be required depending on the substrate and project specification.

10. FLOOR BUILD-UP AND LEVEL CHECKS

Before installation, confirm the full floor build-up.

Check:

- Existing joist or substrate level
- 22mm routed chipboard board thickness
- 12mm pipe position
- Overboard type and thickness
- Floor finish thickness
- Adhesive layers
- Door thresholds
- Skirting details
- Stair risers
- Floor level transitions between rooms
- Appliance clearances
- Kitchen and fixed furniture details
- Movement joint positions

Do not start installation until the finished floor level has been checked and agreed.

The floor build-up must be suitable for the intended use, loading and final floor finish.

11. SETTING OUT THE INSTALLATION

Before fixing the routed chipboard, boards or installing pipework, review the Tekwarm UFH layout drawing.

Check:

- Room names and zones
- Manifold position
- Flow and return routes
- Pipe routes
- Loop lengths
- Pipe centres
- Board layout
- Board orientation
- Joist direction where applicable
- No-pipe zones
- Door thresholds
- Service penetrations
- Movement joints
- Overboard requirements
- Final floor finish requirements

The installer should mark out key room zones, manifold routes, no-pipe areas and service zones before installation begins.

Pipe should generally not be installed beneath fixed units, kitchen islands, baths, shower trays, toilets, fitted wardrobes or areas where permanent fixtures may trap heat or where future fixings may penetrate the floor, unless specifically allowed within the Tekwarm design.

Dry-lay initial boards where helpful to confirm orientation, cuts and pipe routes before final fixing.

12. MANIFOLD POSITIONING AND MOUNTING

The manifold should be installed in the agreed location shown on the Tekwarm design.

The manifold should be:

- Accessible for commissioning, servicing and maintenance
- Positioned to allow neat pipe routing
- Located where all loops can return without excessive pipe congestion
- Mounted level
- Securely fixed to a suitable wall, cabinet or support frame
- Protected from impact and site damage
- Positioned high enough to allow suitable pipe bends and connections

Avoid positioning the manifold behind fixed units, in inaccessible cupboards or where future access will be restricted.

Allow sufficient space below the manifold for pipework to route neatly into the routed board area without kinks or tight bends.

Clearly identify flow and return bars before connecting pipework.

13. ROUTED CHIPBOARD BOARD INSTALLATION

Tekwarm 22mm routed chipboard boards should be installed in accordance with the Tekwarm UFH design and board layout.

The boards should be installed:

- Flat and level
- Fully supported
- In the correct orientation
- With routed channels aligned correctly
- With pipe routes matching the Tekwarm design
- Tightly jointed
- Without rocking, curling or movement
- With cuts kept neat and stable
- With sufficient fixings to hold the board rigidly in place
- With all joints supported where required
- With board edges properly supported and secured

Boards should be positioned so that the routed channels line up between boards and allow continuous pipe routes.

Do not force boards into position. If the boards do not align correctly, stop and check the layout before continuing.

The routed chipboard boards must remain stable during pipe installation, pressure testing, overboarding and floor finish installation.

14. FIXING ROUTED CHIPBOARD BOARDS OVER JOISTS

Where routed chipboard boards are installed directly over joists, the boards must be fixed securely to the joists.

Fixings should:

- Be suitable for chipboard and timber joists
- Hold the board rigidly in place
- Prevent board movement
- Prevent squeaking and deflection
- Be installed at suitable centres
- Be increased around board edges and high-traffic areas where required
- Avoid the routed pipe channels
- Avoid future pipe routes
- Be countersunk or flush where required
- Not split or damage the boards
- Be installed in accordance with the board manufacturer's guidance

Board joints should be positioned and supported correctly.

Where tongue-and-groove joints are present, they should be glued where required by the board manufacturer.

Boards should not be left with unsupported joints or loose edges.

Where joist centres, board direction or joint locations do not provide adequate support, additional noggins, bearers or support may be required.

15. FIXING ROUTED CHIPBOARD BOARDS OVER EXISTING TIMBER DECKS

Where routed chipboard boards are installed over an existing timber deck, the deck must be stable, level and securely fixed.

Before installation:

- Fix any loose boards.
- Replace damaged or weak boards.
- Check for excessive deflection.
- Check for squeaks or movement.
- Confirm the deck is dry and suitable.
- Confirm safe fixing zones.
- Check for services below.

The routed chipboard boards should be fixed sufficiently to hold them rigidly in place.

Fixings should:

- Penetrate into the existing deck adequately
- Avoid services
- Avoid routed pipe channels
- Avoid future pipe routes
- Be installed flush
- Prevent board movement
- Prevent rocking or lifting
- Be suitable for the board and substrate

Where the existing deck is uneven, a levelling layer or remedial work may be required before installation.

16. FIXING ROUTED CHIPBOARD BOARDS OVER CONCRETE OR SCREED SUBSTRATES

Where routed chipboard boards are installed over concrete or screed substrates, the substrate must be clean, dry, level and suitable.

Where the substrate is uneven, a levelling screed or suitable smoothing / levelling compound may be required before installation.

The fixing method should be confirmed before installation and must be suitable for the substrate and floor build-up.

Where mechanical fixing into concrete or screed is used, fixings should:

- Be suitable for the substrate
- Hold the board securely
- Avoid future pipe routes
- Be positioned away from routed channels
- Be installed flush
- Prevent board movement
- Prevent rocking or lifting
- Not damage the board
- Be installed at sufficient centres to hold the board rigidly in place

Where adhesive bonding is specified as part of the system, it must be suitable for the substrate and chipboard board. The adhesive manufacturer's guidance must be followed.

Where installation is over concrete or screed, moisture control must be considered. A damp proof membrane or suitable moisture barrier may be required depending on site conditions.

17. BOARD JOINTS, EDGES AND CUT SECTIONS

Board joints should be tight, stable and fully supported.

Pay particular attention to:

- Perimeters
- Doorways
- Manifold routes
- Small cut sections
- Pipe return areas
- Board transitions
- Service penetrations
- Movement joint locations
- Joist-supported board edges
- Overboard fixing zones

Cut boards should be neat, fully supported and restrained.

Small chipboard infill pieces should not be left loose. They should be fixed or otherwise restrained as required.

Avoid gaps where overlay boards may deflect, crack or become unsupported.

Where board joints are uneven, rocking or misaligned, correct them before installing pipework.

18. PIPE HANDLING AND STORAGE

Tekwarm 12mm UFH pipe should be handled carefully.

Before installation:

- Store pipe on a clean, dry surface.

- Keep pipe in its packaging until required.
- Protect pipe from sharp objects.
- Do not drag pipe across rough surfaces or sharp board edges.
- Do not install damaged, kinked, crushed or heavily scratched pipe.
- Do not expose pipe to unnecessary heat or naked flames.
- Use a pipe decoiler to prevent twisting.

Pipe should be installed in continuous loops from the manifold and back to the manifold.

Do not join pipework within the floor build-up unless specifically approved by Tekwarm and the project design team.

Any damaged pipe should be replaced.

19. LAYING 12MM PIPEWORK INTO THE ROUTED CHIPBOARD BOARDS

Start each loop at the manifold.

Connect the pipe to the correct manifold port or leave sufficient pipe length for connection, depending on the preferred installation method.

Lay the **12mm Tekwarm pipe** in accordance with the Tekwarm UFH design drawing.

Pipe should be laid:

- In the correct room or zone
- Into the routed chipboard channels
- Without kinks
- Without twisting
- With smooth bends
- Without excessive tension
- With flow and return routes kept neat at the manifold
- Without lifting the routed board
- Without sitting proud above the board where this may affect the overboard system

Press the pipe carefully into the routed channels so that it is held securely.

Where the pipe does not sit correctly, do not force it. Check the route, board alignment, pipe size and bend radius.

Pipe bends must respect the minimum bend radius recommended for the pipe. If a pipe kinks, the affected section should be replaced or technical advice sought.

20. PIPE BENDS, RETURNS AND MANIFOLD ROUTES

Special care is required where pipe changes direction, returns to the manifold or enters / leaves the routed board area.

Pipe bends should:

- Be smooth
- Avoid kinks
- Respect the minimum bend radius
- Avoid sharp board edges
- Avoid excessive stress
- Be protected where required
- Avoid lifting the board
- Avoid sitting proud of the floor build-up

At manifold routes, pipework can become congested. Ensure the pipework is neatly arranged and protected where required.

Where the pipe exits routed channels, use suitable bends, protection sleeves or transition detailing where needed.

Do not allow pipework to sit proud where it may interfere with the overboard or final floor finish.

21. MAINTAINING PIPE SPACING AND SYSTEM LAYOUT

The routed chipboard system is designed to maintain pipe spacing through pre-formed channels.

Do not alter pipe routes or centres without approval.

Changing pipe spacing or routes can affect:

- Heat output
- Floor surface temperature
- System balancing
- Comfort levels
- Flow rates
- Loop pressure loss
- Boiler or heat pump efficiency
- Overboard installation
- Final floor finish performance
- System response time

The pipe should be checked as installation progresses to ensure it follows the correct routed path and layout.

Pay particular attention to:

- Perimeters
- Doorways
- Manifold routes
- Areas with obstacles
- Rooms with irregular shapes
- Board joints
- Cut board sections
- Loop returns

Where pipe routing needs to change due to site conditions, seek approval before proceeding.

22. PIPE SPACING AND NO-PIPE ZONES

Pipe spacing and no-pipe zones must follow the Tekwarm design.

Pipe should not normally be installed within areas where fixings may later penetrate the floor, unless clearly identified and protected.

No-pipe zones may include:

- Kitchen islands
- Fixed cupboards
- Shower trays
- Baths
- Toilets
- Stair bases
- Floor-mounted partitions
- Service penetrations
- Areas requiring future floor fixings

Mark or photograph pipe positions before over boarding.

This is especially important around kitchens, islands, thresholds, stair bases, partitions and service zones.

A photographic record should be retained with the project handover information.

23. OVERBOARDING THE ROUTED CHIPBOARD SYSTEM

The routed chipboard system should be covered using a suitable overboard or floor deck where required by the final floor finish, loading or project specification.

Suitable overboard materials may include:

- Chipboard
- OSB
- Plywood
- Cement board
- Tile backer board
- Screed board
- Dry floorboard systems
- Other approved structural or load-spreading boards

The selected overboard must be:

- Suitable for the intended loading
- Suitable for use over UFH
- Suitable for the floor finish
- Compatible with the routed chipboard system

- Installed in accordance with the board manufacturer's instructions
- Fixed correctly
- Glued where required
- Fit for the intended purpose

The overboard should sit flat over the routed chipboard boards and pipework without rocking, bouncing or creating high points.

The overboard must be fixed sufficiently to hold it rigidly in place.

Fixings must not penetrate or damage the UFH pipe.

Before fixing overboard, clearly identify pipe routes and safe fixing zones.

Where chipboard is used, tongue-and-groove joints should be glued where required by the board manufacturer.

Where plywood, OSB, cement board or screed board is used, follow the manufacturer's guidance on thickness, orientation, expansion gaps, fixing centres, adhesive, primer and suitability for the final floor finish.

24. FLOATING OVERBOARD SYSTEMS

Where a floating overboard system is used, it must be installed strictly in accordance with the overboard manufacturer's instructions.

The floating layer must be:

- Suitable for UFH
- Suitable for the final floor finish
- Suitable for the intended loading
- Fully supported
- Laid flat
- Properly jointed
- Glued where required
- Screwed where required
- Restrained where required
- Installed with the correct expansion gaps
- Compatible with the routed chipboard system

Where the manufacturer requires the boards to be glued and screwed, this must be followed.

Do not assume floating means "loose". In flooring, loose usually means noisy, moving, cracked or all three if you're having a particularly bad week.

The overboard system must provide a stable, load-spreading layer over the routed chipboard and pipework.

25. FIXING PRECAUTIONS DURING OVERBOARDING

When over boarding, take extreme care to avoid pipe damage.

Before fixing:

- ✓ Check pipe routes.
- ✓ Photograph pipe routes.
- ✓ Mark safe fixing zones.
- ✓ Confirm board fixing method.
- ✓ Confirm fixing lengths.
- ✓ Avoid fixing into pipe channels.
- ✓ Avoid over-penetration.
- ✓ Do not use fixings where pipe location is uncertain.

The overboard fixing pattern should follow the board manufacturer's instructions and structural requirements.

Where adhesive or glue is specified, use the correct product. The adhesive must be compatible with the overboard, routed chipboard system and intended floor build-up.

After over boarding, do not drag heavy materials across the floor unless suitable protection is used.

26. MANIFOLD CONNECTIONS

Once each loop has been installed, return the pipe to the correct manifold connection.

Cut the pipe cleanly and square using a suitable pipe cutter.

Connect each loop to the correct manifold port using the appropriate Tekwarm manifold connection set.

Ensure:

- Pipe ends are clean and undamaged
- Connections are fully inserted
- Compression fittings are tightened correctly
- Flow and return are connected to the correct bars
- Each loop is clearly labelled
- Loop references match the Tekwarm design drawing
- Pipework below the manifold is neat and protected
- Pipe bends into the manifold are smooth and not stressed

Do not overtighten manifold connections. Follow the manifold fitting guidance.

Each loop should be clearly labelled with the room name or circuit number.

27. FILLING THE SYSTEM

Before pressure testing, the system must be filled with water and air must be removed from each circuit.

Typical filling procedure:

- Close the manifold isolation valves from the primary heating system.
- Connect a water supply to the manifold fill point.
- Connect a hose from the drain point to a suitable drain.
- Open one UFH loop at a time.
- Flush water through the loop until air is removed and water runs clear.
- Close the completed loop.
- Repeat for each loop.
- Once all loops are filled and vented, open all loops ready for pressure testing.

The system must be fully vented. Air left in the pipework can affect the pressure test and later system performance.

Pressure testing should be carried out hydraulically using water unless otherwise stated by the project specification or Tekwarm guidance.

28. PRESSURE TESTING BEFORE OVERBOARDING

The Tekwarm UFH system must be pressure tested before it is permanently covered or concealed.

Pressure testing confirms the integrity of the pipework and manifold connections before the system becomes difficult to access.

Ideally, the system should be pressure tested before over boarding and kept under suitable pressure during over boarding so accidental damage can be identified.

A typical pressure testing process is:

- Ensure all pipe loops are connected to the manifold.
- Ensure all loop valves are open.
- Ensure the manifold is isolated from the primary heating system.
- Connect a suitable hydraulic pressure test pump.
- Fill and fully vent all loops.
- Increase the pressure gradually.
- Check all manifold connections and visible pipework.
- Maintain the required test pressure for the required test period.
- Record the test pressure, duration, date and installer details.
- Inspect for any pressure loss or visible leaks.
- Do not overboard or conceal the system until the pressure test has passed.

Suggested Tekwarm wording:

The Tekwarm UFH system should be hydraulically pressure tested before the pipework is permanently concealed. Unless project-specific guidance states otherwise, the system should be tested to 6 bar and checked for pressure stability and visible leaks. The system should remain under suitable pressure during overboarding and any subsequent floor installation works.

Where there is a risk of freezing, do not leave the system filled with untreated water unless suitable frost protection measures are in place.

Do not proceed if the pressure test has failed or unexplained pressure loss is observed.

29. PRESSURE TEST RECORD

A pressure test record should be completed before the system is permanently covered.

Recommended information to record:

- Project name
- Plot / area / room reference
- Installer name
- Date of test
- Manifold reference
- Number of loops tested
- Pipe diameter
- Test pressure
- Test duration
- Start pressure
- End pressure
- Ambient temperature
- Any pressure loss
- Confirmation of visual inspection
- Installer signature
- Client / site representative signature where required

A copy of the pressure test record should be retained as part of the project handover file.

30. PRE-OVERBOARD INSPECTION CHECKLIST

Before overboard are installed, check:

- ✓ Correct 22mm routed chipboard boards installed
- ✓ Board size confirmed as 2400mm x 600mm
- ✓ 12mm pipe installed
- ✓ Joists structurally suitable when installed over joists
- ✓ Insulation installed between joists where applicable
- ✓ Existing deck / substrate clean, dry, level and suitable
- ✓ Levelling screed used where required
- ✓ Boards fully supported
- ✓ Boards fixed securely
- ✓ Enough fixings used to hold boards rigidly in place
- ✓ No loose, rocking or lifted boards
- ✓ Board joints tight and stable
- ✓ Routed channels aligned correctly
- ✓ No sharp board edges contacting pipe
- ✓ Pipework installed to design
- ✓ Pipe fully seated in routed channels
- ✓ Pipe bends smooth and not kinked

- ✓ No pipework sitting proud
- ✓ Loops connected to manifold
- ✓ Loops labelled correctly
- ✓ System filled and vented
- ✓ Pressure test completed and recorded
- ✓ System left under pressure for overboarding
- ✓ Pipe routes photographed
- ✓ Safe fixing zones marked
- ✓ Overboard type and fixing method confirmed

31. PRE-FLOOR FINISH CHECKLIST

Before installing final floor finishes, check:

- ✓ Overboard type suitable for UFH
- ✓ Overboard installed to manufacturer's guidance
- ✓ Boards fixed correctly
- ✓ Boards glued where required
- ✓ Floating boards glued and screwed where required by manufacturer
- ✓ No fixings have damaged UFH pipework
- ✓ Floor is flat, stable and suitable
- ✓ UFH pressure has remained stable
- ✓ UFH commissioning has been completed where required
- ✓ Floor finish manufacturer's UFH guidance has been reviewed
- ✓ Maximum floor surface temperature has been confirmed
- ✓ Any required primers, adhesives or decoupling layers have been specified

Different floor finishes have different UFH requirements. Timber, laminate, vinyl, carpet, tiles and resin finishes all have different rules.

32. COMMISSIONING AND INITIAL HEAT-UP

The UFH system should not be operated at full temperature immediately after installation.

Commissioning should be carried out gradually and in accordance with:

- Tekwarm guidance
- Heat source manufacturer's guidance
- Floor finish manufacturer's guidance
- Overboard manufacturer's guidance
- Chipboard manufacturer's guidance
- Project specification
- Relevant UFH standards

The initial heat-up cycle should be controlled and gradual.

Do not use the UFH system to force-dry wet trades or accelerate construction works unless specifically approved.

A gradual commissioning process helps reduce thermal shock, movement, floor finish failure and unnecessary stress within the floor build-up.

33. FLOOR FINISH CONSIDERATIONS

Before installing floor finishes, check:

- Overboard surface condition
- Board moisture content where relevant
- Floor stability
- UFH commissioning records
- Floor finish manufacturer's requirements
- Adhesive compatibility
- Maximum floor surface temperature
- Need for primers, smoothing compounds or membranes
- Expansion gap requirements
- Suitability of the overboard for the chosen finish

Resilient floor finishes, timber, laminate, vinyl, carpet and tiles all have different requirements.

The floor finish installer must confirm that the overboard and routed chipboard build-up are suitable before installing the final floor finish.

34. COMMON INSTALLATION MISTAKES TO AVOID

Avoid the following:

- Installing over unsuitable or overloaded joists
- Working over exposed joists without safe access
- Failing to install insulation between joists where required
- Installing over an uneven deck or substrate
- Failing to use levelling screed where required
- Installing over damp or contaminated substrates
- Installing wet, swollen or damaged chipboard boards
- Failing to check moisture conditions
- Using too few fixings
- Leaving boards loose, rocking or unsupported
- Failing to hold boards rigidly in place
- Failing to align routed channels correctly
- Leaving gaps between boards
- Failing to support board joints
- Using incorrect fixings
- Fixing through pipe channels
- Failing to seat 12mm pipe fully into the routed channels
- Kinking pipe at bends or returns
- Changing pipe routes without approval
- Installing pipe below fixed furniture without design approval
- Failing to photograph pipe routes before over boarding
- Fixing overboard through pipework
- Using unsuitable overboard material

- Failing to glue boards where required
- Assuming floating overboard means loose-laid
- Not gluing and screwing floating systems where required by the manufacturer
- Using incorrect fixings or adhesive
- Failing to pressure test before covering the system
- Not keeping the system under pressure during over boarding
- Installing floor finishes without checking UFH suitability
- Running the UFH system too hot too soon

Routed chipboard systems are only as good as their support and fixing. If the board moves, the floor complains. And floors are terrible at keeping complaints quiet.

35. TEKWARM ROUTED CHIPBOARD INSTALLATION SEQUENCE

1. Review the Tekwarm UFH design.
2. Confirm manifold position.
3. Confirm 22mm routed chipboard board system.
4. Confirm board size: 2400mm x 600mm.
5. Confirm 12mm Tekwarm pipe.
6. Confirm installation method: over joists or over existing deck / substrate.
7. Check joists are structurally suitable where applicable.
8. Provide safe access where working over exposed joists.
9. Install insulation between joists where applicable.
10. Check existing deck or concrete substrate is clean, dry, level and suitable.
11. Install levelling screed or levelling system where required.
12. Dry-lay initial boards where required to confirm layout.
13. Confirm routed channels align with the Tekwarm design.
14. Fix boards securely using suitable fixings.
15. Ensure enough fixings are used to hold boards rigidly in place.
16. Support and secure all board joints, edges and cut sections.
17. Lay pipework from the manifold.
18. Press 12mm pipe securely into routed channels.
19. Check pipe is fully seated and not kinked.
20. Protect pipe at transitions where required.
21. Return pipe loops to the manifold.
22. Cut, connect and label each loop.
23. Fill and flush each loop individually.
24. Vent all air from the system.
25. Hydraulically pressure test the system.
26. Record the test results.
27. Leave the system under suitable pressure.
28. Photograph pipe routes and board layout.
29. Mark safe fixing zones for over boarding.
30. Install suitable overboard in accordance with manufacturer guidance.
31. Glue and screw floating systems where required by the manufacturer.
32. Confirm pressure remains stable after over boarding.
33. Proceed with floor finish installation only once approved.

36. INSTALLER HANDOVER CHECKLIST

The installer should provide the following information at handover:

- ✓ UFH design drawing
- ✓ Manifold schedule
- ✓ Pipe layout photographs
- ✓ Board layout photographs
- ✓ Loop identification records
- ✓ Pressure test certificate
- ✓ Confirmation that 22mm routed chipboard was installed
- ✓ Confirmation board size was 2400mm x 600mm
- ✓ Confirmation 12mm pipe was installed
- ✓ Installation method used: over joists or over existing deck / substrate
- ✓ Insulation type installed between joists where applicable
- ✓ Confirmation boards were fully supported
- ✓ Confirmation boards were fixed rigidly in place
- ✓ Fixing type and fixing pattern used
- ✓ Confirmation levelling screed was used where required
- ✓ Overboard type installed
- ✓ Confirmation overboard fixing and gluing method used
- ✓ Confirmation floating system was glued and screwed where required
- ✓ Commissioning guidance
- ✓ Any deviations from design
- ✓ Any areas requiring special attention

37. DISCLAIMER

This guide is provided as general installation guidance for Tekwarm Castellated Panel UFH systems with self-adhesive backing. It does not replace project-specific design, manufacturer instructions, screed supplier guidance, structural advice or statutory requirements.

All installations must be carried out by competent persons and in accordance with the Tekwarm design, relevant British Standards, Building Regulations, screed manufacturer guidance and floor finish manufacturer requirements.³¹

Where site conditions differ from the design or specification, works should stop and advice should be sought before proceeding.

Tekwarm / TekGroup accepts no responsibility for failures caused by incorrect installation, unsuitable substrates, unapproved design changes, poor adhesion due to unsuitable receiving surfaces, incorrect panel restraint, panel uplift, screed passing beneath panels, incorrect screed installation, premature heating, inadequate drying, incompatible floor finishes or failure to follow relevant manufacturer guidance.