



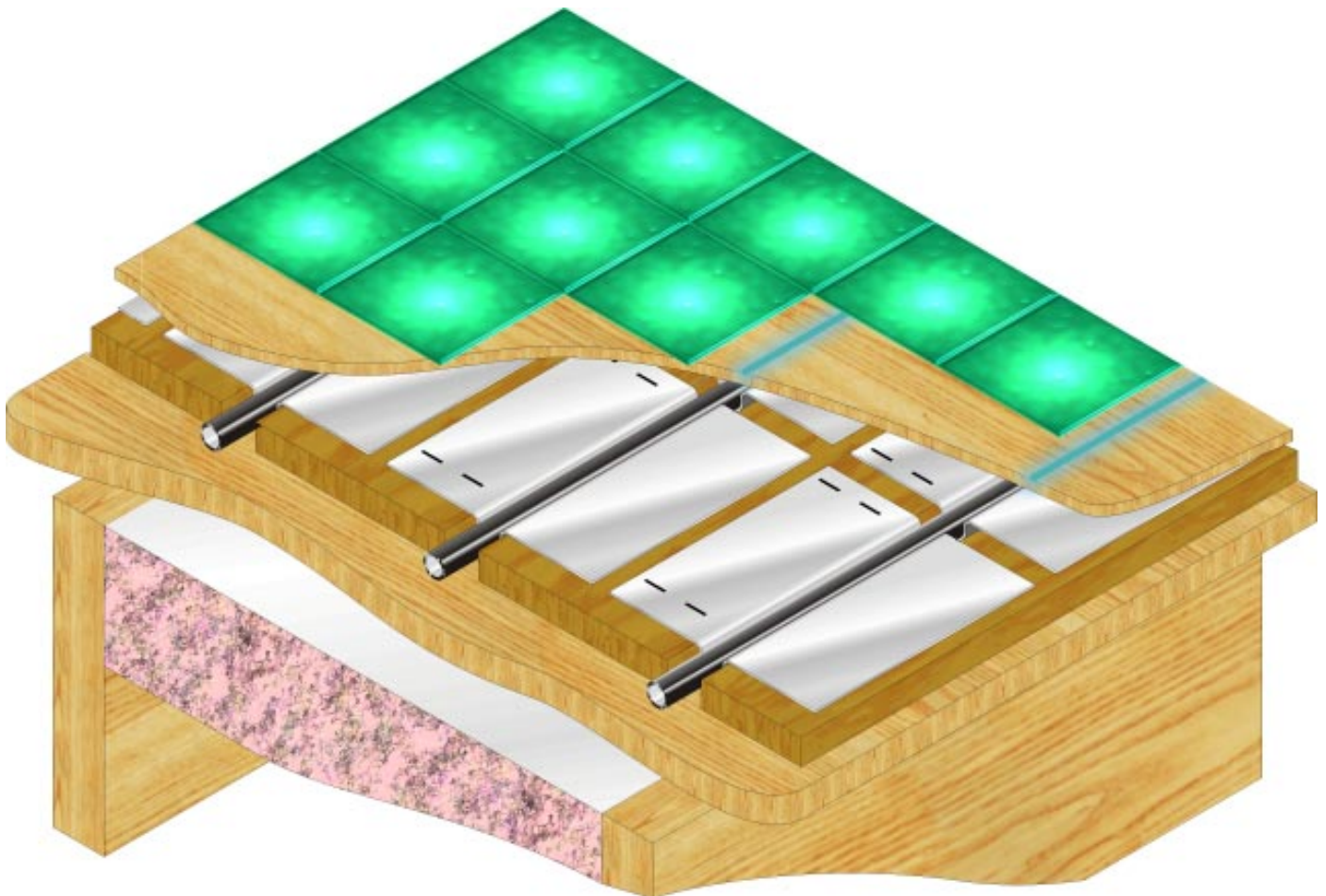
# AlumiPex<sup>®</sup>

## Radiant Tubing

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### Above Floor

## Installation Guide



**WARNING**

These Instructions must be used only by a qualified installer/service technician. Read these instructions completely before beginning. Failure to follow these instructions can cause severe personal injury, death or substantial property damage.





## AlumiPex Radiant Tubing

### Hazard Definitions

**DANGER** Indicates presence of hazards that will cause severe personal injury, death or substantial property damage.

**WARNING** Indicates presence of hazards that can cause severe personal injury, death or substantial property damage.

**CAUTION** Indicates presence of hazards that will or can cause minor personal injury or property damage.

**NOTICE** Indicates special instructions on installation, operation or maintenance that are important but not related to personal injury or property hazards.

### Codes and Standards

- This guide is provided for general information only. The building or heating system designer is responsible for all design details and for compliance with all building codes, local and national.
- Refer to AlumiPex Technical Information sheets for specific approvals and listings of AlumiPex Radiant Tubing.

- AlumiPex Radiant Tubing is not approved for potable water applications.
- Consult local requirements before installing a radiant heating system. Install AlumiPex tubing following all of the applicable codes and all specifications and methods prescribed by the building designer and heating system designer.

**WARNING** Do not use AlumiPex Radiant Tubing to conduct natural gas. Such an application could result in severe personal injury, death or substantial property damage.

**WARNING** Do not use AlumiPex Radiant Tubing in potable water or combination space heating/potable water heating applications. The tubing is not approved for domestic water use. In combination space heating/potable water heating applications, chemical or biological contamination in the system water is possible and could result in severe personal injury, death or substantial property damage.

**WARNING** Do not expose AlumiPex Radiant Tubing to petroleum products or solvents. Do not weld or glue AlumiPex. Do not secure AlumiPex tubing permanently with adhesive tape. The tubing could be damaged, resulting in risk of severe personal injury, death or substantial property damage.

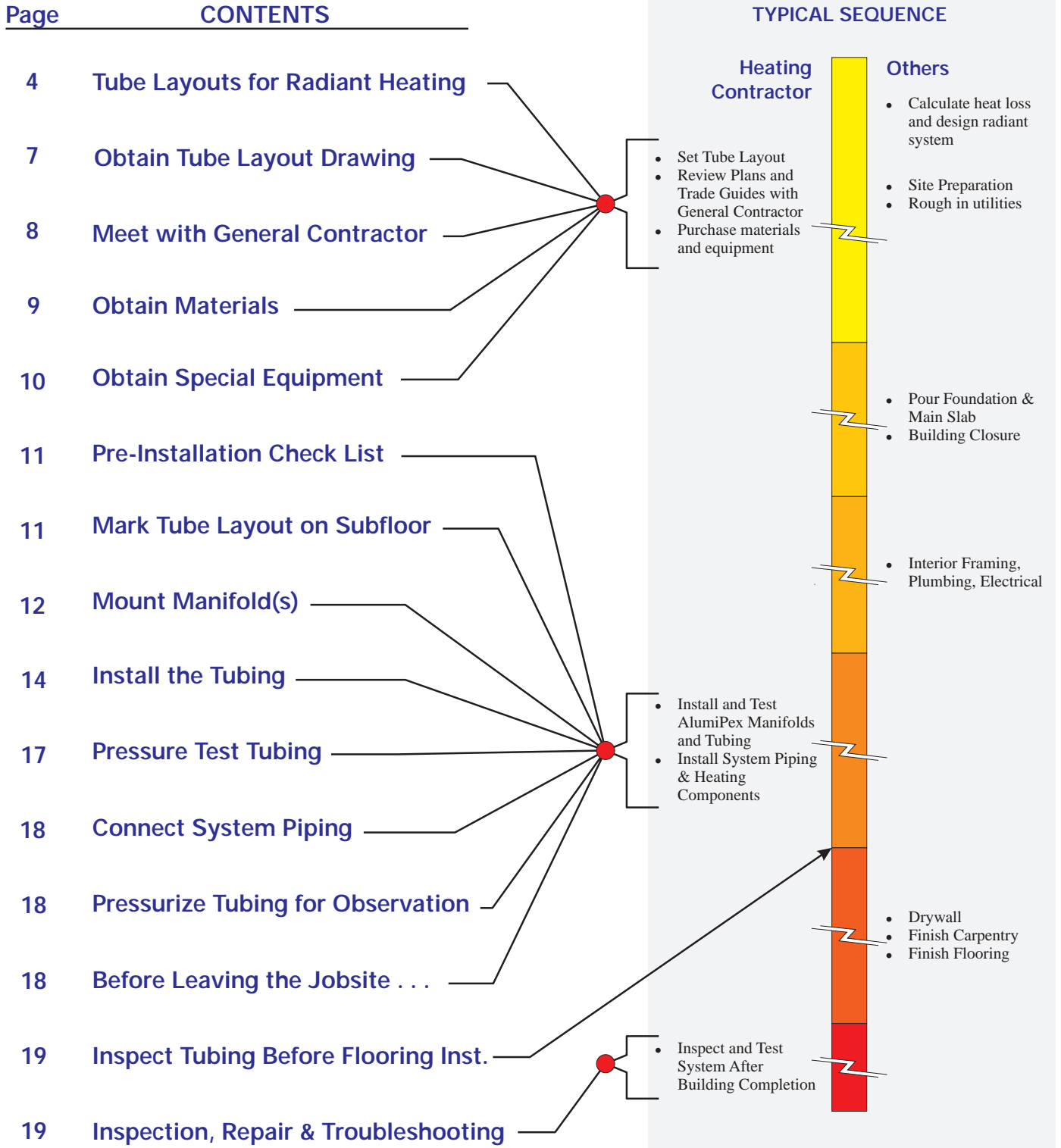
**WARNING** Use only AlumiPex Fittings with AlumiPex Tubing. Use of any other method can result in severe personal injury, death or substantial property damage.

**WARNING** Finished Flooring: Use only finished flooring rated by the flooring manufacturer for use with heated floors. Failure to follow this guideline could result in substantial property damage.

**NOTICE** This installation guide covers both new construction and retrofit. For retrofit of a completed building review the Trade Guides with the building owner if there is no general contractor involved in the remodeling project.



## ALUMIPEX STEP-BY-STEP - - - ABOVE FLOOR INSTALLATION



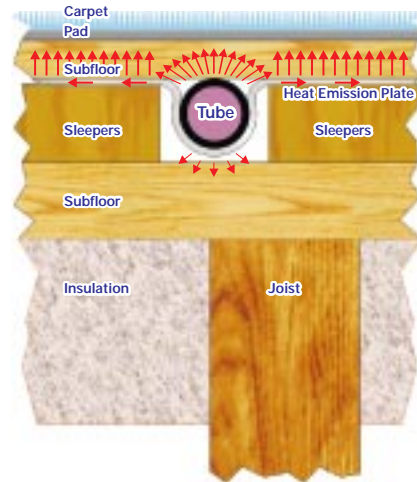


## A. Tube Layouts for Radiant Heating

### 1. Radiant Floor Heating

- Hot water flowing in the radiant tubing under the finished flooring heats the flooring and the heat emission plates. The heat emission plates help spread the heat evenly across the flooring.
- Heat must pass through the flooring and the coverings on the floor (low pile carpeting and thermal pads, for example). See Figure 1.
  - The more the flooring and coverings act as insulators, the higher the tube water temperature has to be to cause the floor surface to heat up.
  - Heavy carpeting and pads resist heat transfer and are not recommended for use in radiant floor heating.
- Heat will also try to move downward.
  - In suspended floor applications, heat will try to pass to the space underneath. So insulation is needed under the floor to prevent this heat movement.

Figure 1 - Heat flow from tube through slab



### 2. Heat Output from Radiant Floors

- The floor surface is usually heated to a maximum temperature of about 85 °F - the surface temperature of human skin.
  - Higher floor temperatures in occupied areas could be uncomfortable.
  - Floor surface temperatures up to 92 °F are often used around the outside perimeter of rooms and in other areas where foot contact is limited.
- The heat given off by the floor depends on the difference between the room temperature and the floor temperature - the larger the difference in temperature, the greater the heat.
  - With the floor at 85 °F and room temperature at 70 °F, each square foot of the heated floor will give off about 30 Btu's per hour.
- The spacing of tubes affects how much heat can be moved through the floor.
  - Closer spacing increases the heat per square foot of floor.
  - This is why tubes are often spaced closer together along outside walls with high heat losses - like next to large windows or patio doors.

### 3. Radiant Floor Heating Design

- The heating system designer must determine:
  - The heat loss for each room.
  - Square feet of room floor surface available for floor heating.
  - The water temperature in the tubing and spacing between tubes - to match the heat given off by the floor to the heat lost from the room.

### 4. Tube Layout Patterns

- The routing of the tubing in the room affects room comfort and effectiveness of the floor heating system.
- Figure 2 shows typical tube layouts for above floor installations.
  - Where possible, the hottest water is usually routed along the outside walls.
  - Tube routing in above floor installations is limited by the practicality of variations in sleeper layouts. *Sleepers* are the boards used to separate the tubing and support the flooring.
- Where the outside wall loss is particularly high, such as caused by patio doors, the tubing will sometimes be spaced closer together for a few feet out from the wall as shown in Figure 2.
- Pay close attention to the key information given in these illustrations, such as:
  - flow direction
  - minimum bend diameters
  - spacing to walls
  - heat emission plates
  - passage under walls
  - use of closer spacing

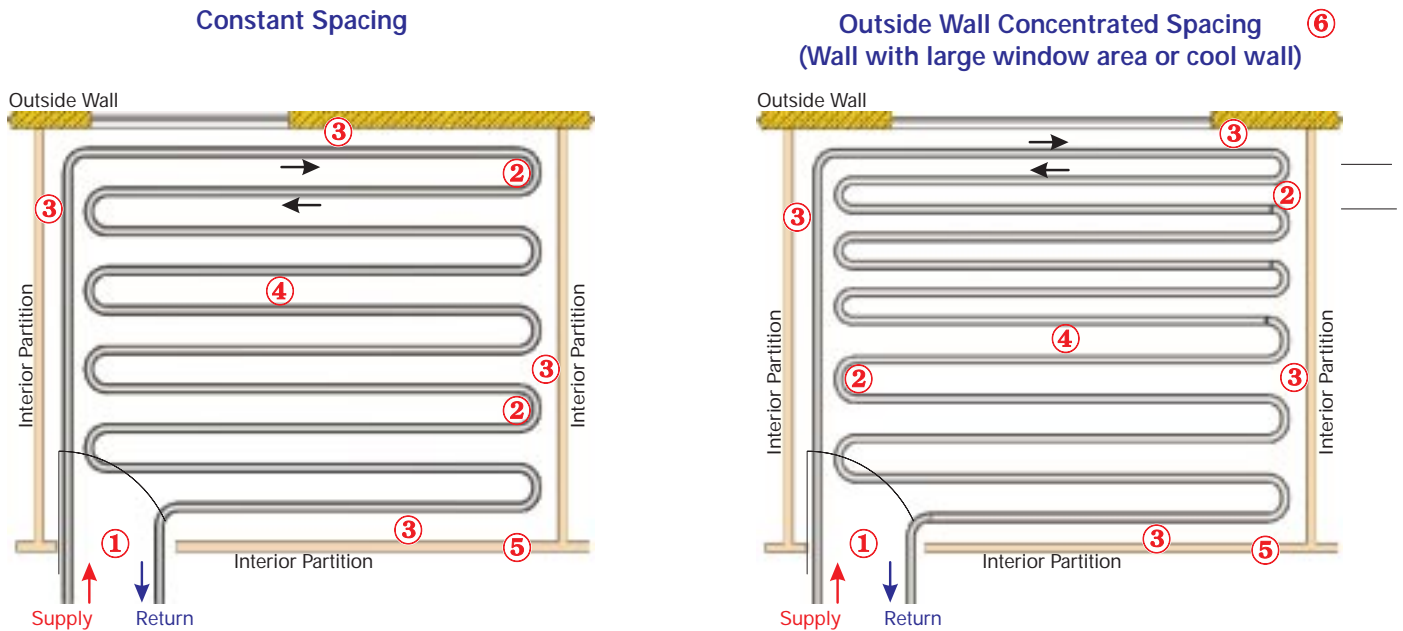
# Above Floor Installation Guide



Figure 2 - Typical tube routing for an above floor installation

## ABOVE FLOOR INSTALLATION

### (One-Way Serpentine Patterns - Typical)



These drawings are conceptual only. Consult Weil-McLain Radiant Guides or Software for actual project layout.

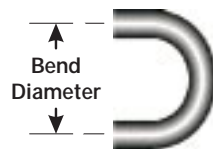
#### ① NOTE FLOW DIRECTION

- The warmest water is directed next to the outside wall.

#### ② BEND DIAMETER

Maintain a MINIMUM bend diameter of:

- 1/2" Tube - 6 inches
- 5/8" Tube - 7 inches
- 3/4" Tube - 8 inches



#### ④ USE HEAT EMISSION PLATES

- Snap the tubing into AlumiPex Heat Emission Plates placed on the sleepers.
- These plates spread the heat evenly to the floor and ensure that the tubing is maintained in tight contact with the flooring above.
- Staple the heat emission plates to the sleepers on one side only to allow the plates to conform as the flooring or subfloor is installed.

#### ⑤ PASSAGE UNDER WALLS

- Avoid running tube under walls if possible.
- Where tubing must run under a wall, mark the framing above for 6 inches on either side of this location so no fasteners will be driven into the framing near the tubing.

#### ③ DISTANCE TO WALL

- Keep the tubing 4 to 6 inches from the walls.
- This will reduce the chance of damage due to drilling, sawing or nailing.

#### ⑥ CLOSER SPACING

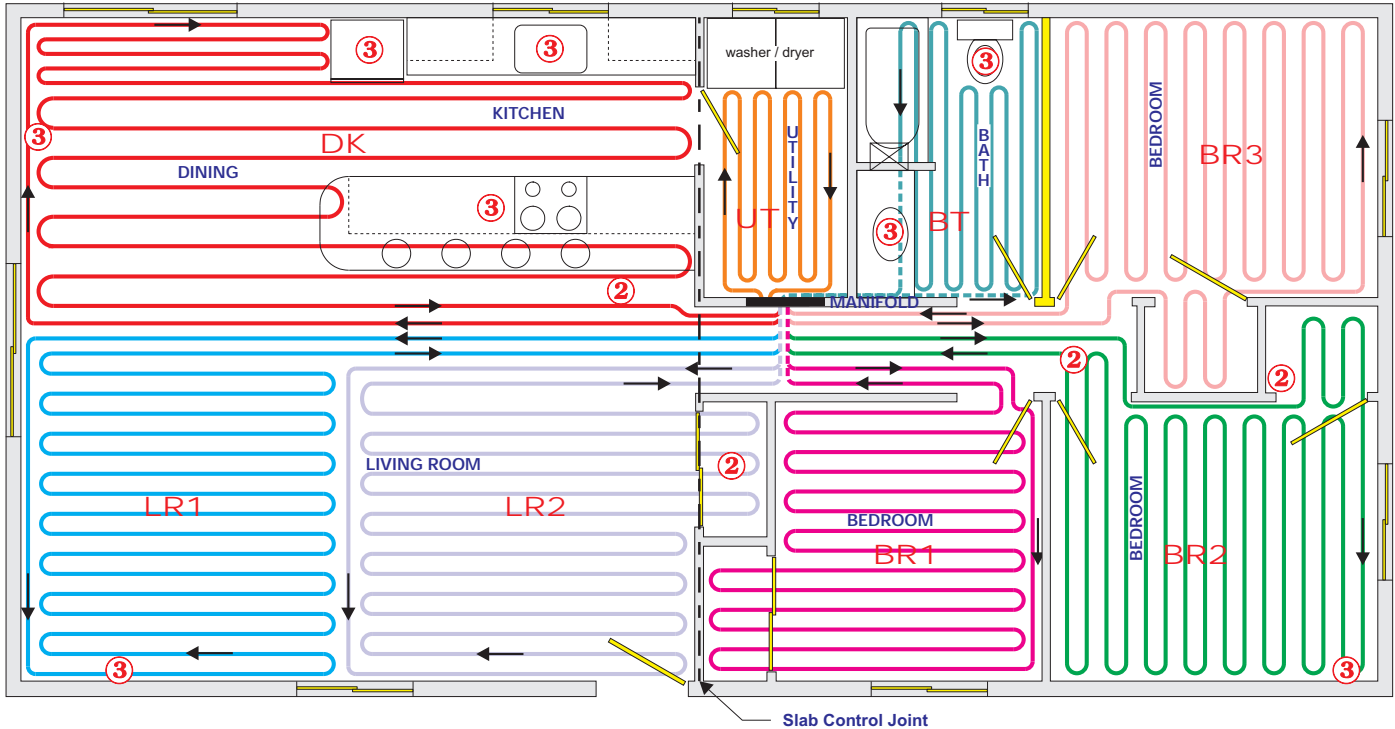
- Tubing is often spaced closer near outside walls with cool surface temperatures or large window areas.



# AlumiPex Radiant Tubing

Figure 6 - Typical tube layout drawing

## TUBE LAYOUT DRAWING - Typical



This drawing is conceptual only. Consult Weil-McLain Radiant Guides or Software for actual project layout.

Tubing Circuit	Finished Flooring	Tube Spacing (Center to Center)		Circuit Length Feet	Leader Length Feet	Length Allowance Feet	Total Tube Length Feet
		Normal Inches	Close Inches				
		LR1	Low pile carpet w/ thermal pad				
LR2	Low pile carpet w/ thermal pad	8.5	6.5	192	22	10	224
DK	Laminated hardwood	12.5	6.5	227	28	10	265
UT	Ceramic tile	6.5		45	4	10	59
BT	Ceramic tile	6.5		79	12	10	101
BR1	Laminated hardwood	8.5	6.5	141	22	10	173
BR2	Laminated hardwood	8.5	6.5	163	22	10	195
BR3	Laminated hardwood	8.5	6.5	156	19	10	185

Coil Number	Coil Length	Tube Size	Use for Circuits Listed	Total Length
1	1000 feet	1/2"	LR1, LR2, DK, UT & BR2	974
2	300 feet	1/2"	BT & BR3	286
3	300 feet	1/2"	BR1	173





## ① Floor Plan/Layout Should . . . . .

- Be drawn to scale using a CAD program so tube lengths can be calculated by the program.
- Show complete floor plan, including all appliances, cabinets, fireplaces and any other details which could affect the routing of the tubing.
- Show complete layout of all circuits.
- Provide length of each circuit, including leader length. *Leaders* are the tubing runs connecting from the room circuits to the manifold(s).  
*The heating system designer may add an allowance to the total length to account for variations in actual installation. This might range from 3 to 10% depending on the type of installation. In the example shown at left, the designer used a length allowance of 10 feet.*
- Show tube spacing and flow directions.
- State finished flooring assumed for each space.

## ② Note Tube Routing

- Run leaders (connecting tubing from manifolds to circuits) through hallways.
- Run leaders and tubing under doorways.
- Avoid running under walls to reduce chances of damage from fasteners.
- Mark the framing above where tubing runs under walls so all trades will be aware.
- If tubing must penetrate a firewall, follow local codes regarding sleeving and fire stopping requirements.

## ③ DO NOT Run Tubing:

- Under cabinets, refrigerators, ranges, freezers. These items "block" the heat and the tubing would be wasted.
- Within 8 inches of toilet flanges. The wax ring seal may soften and fail from the heat.
- Under fireplaces, ovens, appliances or other heat sources.
- Closer than 4" from walls.
- Closer than 6" from appliance vents or flues.

## B. Obtain Tube Layout Drawing

1. **Do not start a radiant heating installation without a detailed tube layout drawing.**
  - It provides critical information on:
    - tube routing
    - tube lengths
    - areas to be avoided
    - materials needed
2. **Figure 3 includes the information and drawing detail for a typical tube layout drawing.**
3. **A complete, accurate drawing of the tube layout is the most important key to a successful job.**



### C. Meet with General Contractor

#### 1. We suggest you meet with the general contractor and follow this checklist:

- Review the AlumiPex Trade Guides with the general contractor and ask him to provide the information and copies to each of the trades involved.
- Verify that the flooring system is rated by the flooring manufacturer for use with heated floors.
- Verify architectural details affected by the flooring system. Verify that the building designer has allowed for the following:
  - The rough openings for doors and windows allow for the height of the flooring system.
  - Stair risers include allowance for the height of the flooring system.
- Ensure that the tubing will be stored inside until time for use.
  - AlumiPex is specially designed to protect the tubing from damaging ultraviolet rays. However, avoid exposing the tubing to direct sunlight for extremely long periods.
  - Do not install AlumiPex tubing in applications which will continuously expose the tubing to direct sunlight.
- Discuss the tube layout drawing with the general contractor and verify:
  - floor plan design has not been changed.
  - finished floorings (and coverings) shown by heating system designer are correct per final design.
- If the tubing passes under any interior walls, you should mark these locations on the framing above.
  - Ask the general contractor to notify other trades to watch for these markings to ensure tubing will not be damaged by fasteners.
- If the tubing passes through stud walls, the framing carpenters should apply nail stops on both sides of the stud at these locations.
  - Ask the general contractor to notify other trades to watch for these locations to ensure tubing will not be damaged by fasteners.
- A copy of the tube layout drawing should be given to the general contractor to ensure a trouble-free installation.
  - You will probably want to provide a final copy after the installation is complete.
  - The final copy should show special notations, any changes from the original plan, and locations of any repairs.



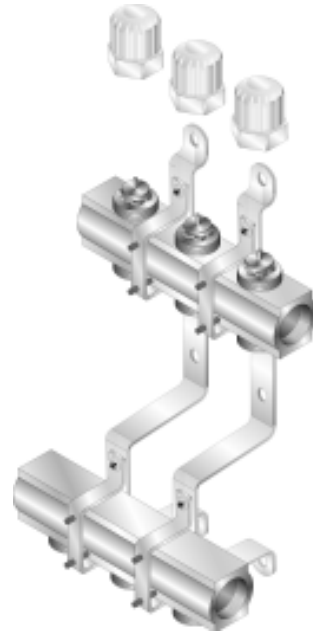


## D. Obtain Materials



### 1. AlumiPex Tubing

- In rolls and sizes specified on tube layout drawing.



### 3. AlumiPex Manifolds

- Available in three sizes (2, 3 and 4 takeoff) in nickel-plated brass (shown above), with or without integral balancing valves .
- Copper manifolds (not shown) are also available.
- Refer to AlumiPex Manifold Instructions for part numbers and procedures.



### 2. AlumiPex Tube Fittings

- Refer to AlumiPex Fitting Instructions for part numbers and procedures.

### 4. Additional Materials

- a. AlumiPex Heat Emission Plates
  - These are sized and designed specifically for use with AlumiPex 1/2" tubing.
  - See Figure 11, Page 16.
  - Do not apply tubing in above floor installations without heat emission plates. Heat will be uneven and could cause shrinkage or damage to flooring.
- b. Staples
  - Use staples sized so as not to penetrate deeper than the subfloor. Usually, 5/8" staples will work well.
- c. Poly-wrapped insulation (if not already installed in joist bays below)
- e. Manifold Enclosure(s) (Optional)
  - 30" x 27" or 30" x 37".

**WARNING** Use only AlumiPex Fittings with AlumiPex Tubing. Use of any other method can result in severe personal injury, death or substantial property damage. Refer to AlumiPex Fitting Instructions for selection and application of fittings.



### E. Obtain Special Equipment



#### 1. Tubing Uncoiler

- Assists in tube installation.



#### 2. AlumiPex Tube Cutter



#### 3. AlumiPex Reamer/Sizer(s)

- The reamer/sizer is specific to tube diameter.
- Make sure to have the right reamer/sizer for each size of tubing being installed.



#### 4. Pressure Gauge

- With a scale range of 150 psig.
- For pressure testing and tubing pressurization.



## F. Pre-Installation Check List

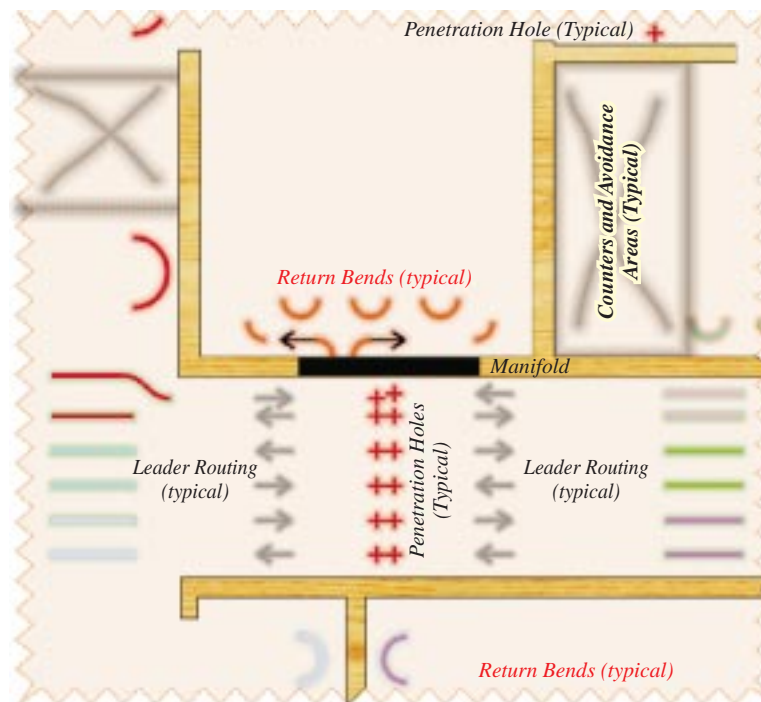
- Subfloor must be installed.
- Interior framing should be completed, but drywall and finish carpentry not in place if possible.
- Review AlumiPex Trade Guides with general contractor to ensure other trades will be informed.
- Make provision for pressure testing:
  - Water if no freeze concern.
  - Otherwise, air compressor and hoses for air test and pressurization.
- Read this installation guide, the AlumiPex Fitting Instructions and AlumiPex Manifold Instructions thoroughly.

## G. Mark Floor Plan and Tube Layout on Subfloor

### 1. Use the Tube Layout Plan to mark the following on the subfloor. Use several colors if possible to define different elements and circuits.

- See Figure 7 for typical layout markings for the system shown in Figure 6, page 6.
- Mark wall lines and door openings (if interior framing is not already installed).
- Mark outlines of kitchen and bath cabinets, appliances, etc.
- Mark areas to be avoided (fireplaces, toilet flanges, etc.).
- Then mark key portions of the tube layout, showing tube bend locations and flow direction.
- Mark locations of penetration holes in rooms and hallways, if any.

Figure 7 - Possible layout markings on subfloor for portion of system shown in Figure 6



This drawing is conceptual only. Consult heating system designer for actual job details.

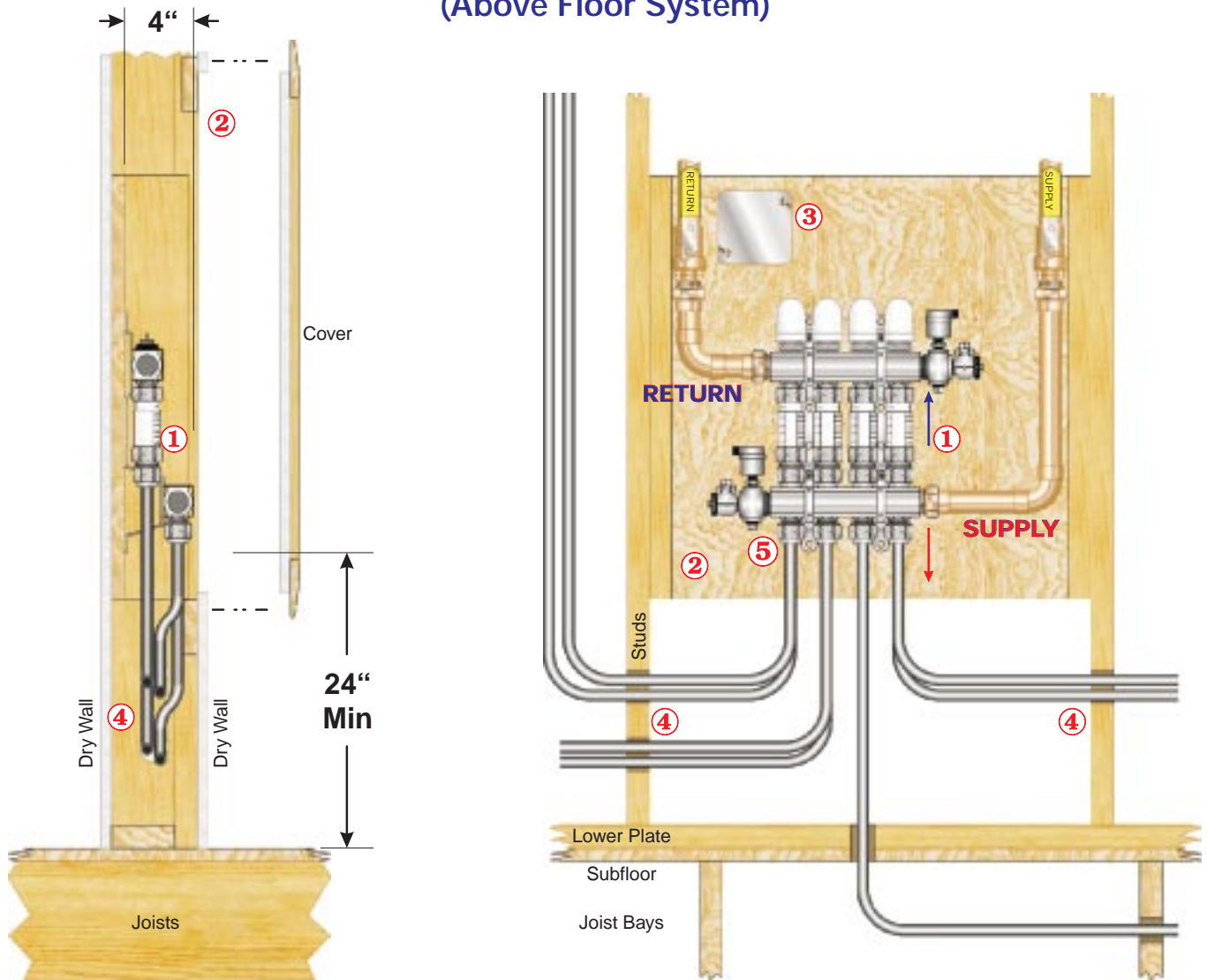


### H. Mount Manifold(s)

1. **Accurately measure the location of the manifold mounting wall (if not already installed).**
  - Placement of the manifold and the tube penetrations is critical.
  - Take extra care in laying out these locations so all items will be in proper position for the interior framing of the building.
2. **Attach the manifold to a plywood panel.**
  - Size the panel to fit between the finished studs if the panel is to be recess mounted.
  - Longer manifolds will require spanning more than one stud spacing.
  - For a complete metal cabinet enclosure, use AlumiPex Wall Cabinets.
  - See Figure 8 for a typical manifold mounting arrangement.
3. **Prepare holes for tube routing.**
  - Drill 1½” holes through the studs to route tubing to upper floors. See Figure 9 for drilling penetration holes in the rooms above.
  - Drill 1½” holes through the sole plate in the manifold stud cavity for penetrations to route tubing to same floor or lower floor heating circuits.
  - Route same floor tubing through the joist bays below and then up through holes in each room unless the tubing will be routed through a hallway as in Figure 6. Here, the tubing would be routed to the joist bay below, then up to the proper locations in the hallway to route to the rooms. This method provides a neat installation while allowing ample room for tube bending.
  - When drilling the holes for tube penetration into the rooms or hallway, drill the holes at a 45 degree angle to provide the proper minimum bend diameter for the tubing. See Figure 9, Page 14.

Figure 8 - Mounting of manifold(s), typical

## MANIFOLD MOUNTING (Above Floor System)



The details shown are representative only. Other mounting configurations are possible.

### ① AlumiPex Manifold, Typical

- Refer to AlumiPex Manifold Instructions for details of mounting, assembly and application.

### ② Mounting Configuration

- The installed depth of the manifold assembly is approximately 4 inches.
- If mounted on 3/4" plywood as shown, the complete assembly would fit in a 5" deep enclosure.
- This can be done by using 2 x 6 studs in the vicinity of the manifold or building out from 2 x 4 studs.

### ③ Junction Box

- Junction box for manifold valve actuator wiring, if needed.

### ④ Protect Tubing at Penetrations

- Where tubing passes through stud walls, make sure nail stoppers are installed on both sides of the stud to protect tubing from damage by fasteners.
- Make sure the drywall installers and finish carpenters are aware of the tubing in the walls and floors.

### ⑤ AlumiPex Manifold Fittings

- Refer to AlumiPex Fitting Instructions for selection and application of AlumiPex fittings.



## I. Install the Tubing

### WARNING

Always wear safety glasses for eye protection when handling AlumiPex tubing. The tubing can spring back when pulled. Failure to follow this guideline could result in serious personal injury.

### 1. Install the sleepers.

- Beginning from one side of each room, use your floor markings and the tube layout drawing to place the sleepers.
- Glue and nail each sleeper in place as shown in Figure 10.
- Bend routing sleepers can be made using a router and fixture as shown or using a saber saw to cut semicircles.

### 2. Drill tube penetration holes.

- If the tubing will penetrate the floor in the room, drill a 1/2" hole at a 45 degree angle for each penetration as shown in Figure 9.
- Make sure the tube can be routed through the hole from below and provide a minimum 6 inch bend diameter (3 inch bend radius) for 1/2" tubing.

### 3. Install heat emission plates.

- Install AlumiPex Heat Emission Plates in the sleeper spaces, centered in the 1" gap.
- Secure heat emission plates on one side only to the sleeper below using 5/8" staples.
- Leave the other side of the heat emission plates free to move so the plates can conform to the floor as the upper subfloor or finished flooring is installed.
- See Figure 11 for typical details.

### 4. Place tube roll on uncoiler.

### 5. Route free end of tubing to manifold.

- Feed the free end of the tubing through any penetration holes to the manifold.

### 6. Install manifold fitting on free end of tube.

- a. AlumiPex Nickel-Plated Brass Manifolds:
  - Use only AlumiPex Euro conical fittings.
  - Refer to AlumiPex Manifold Instructions for details and part numbers.
- b. AlumiPex Copper Manifolds:
  - Use only AlumiPex tubing to NPT connectors.

7. Attach tube fitting to manifold SUPPLY connection (bottom manifold).
8. Feed the tubing to the room as shown on the heating system designer's tube layout drawing, feeding the outer (SUPPLY) tubing first.
9. Complete the layout for the circuit and route the tubing back to the return manifold as shown on the tube layout drawing.
10. Carefully cut the tubing to the correct height at the return manifold. Apply an AlumiPex fitting for attachment to the manifold.
11. Then attach the fitting to the RETURN (top) manifold.
12. Continue the process for each circuit.
13. See Figure 11, page 16, for an above floor construction example.

Figure 9 - Tubing penetration hole, typical

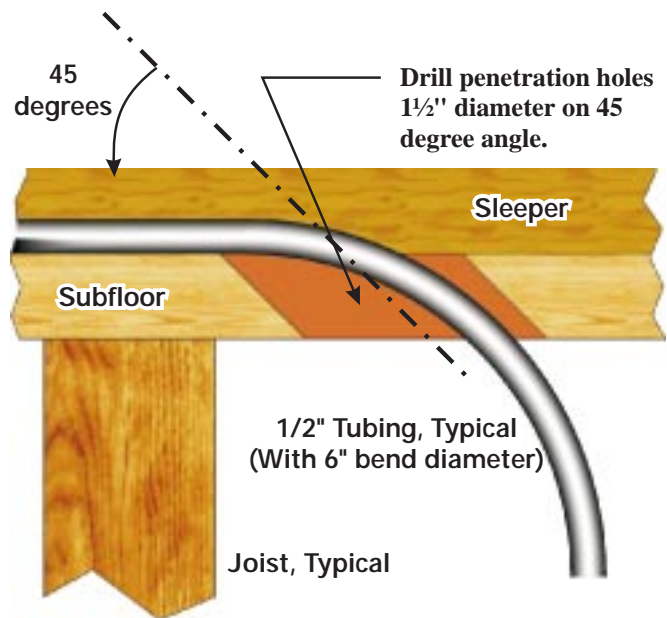
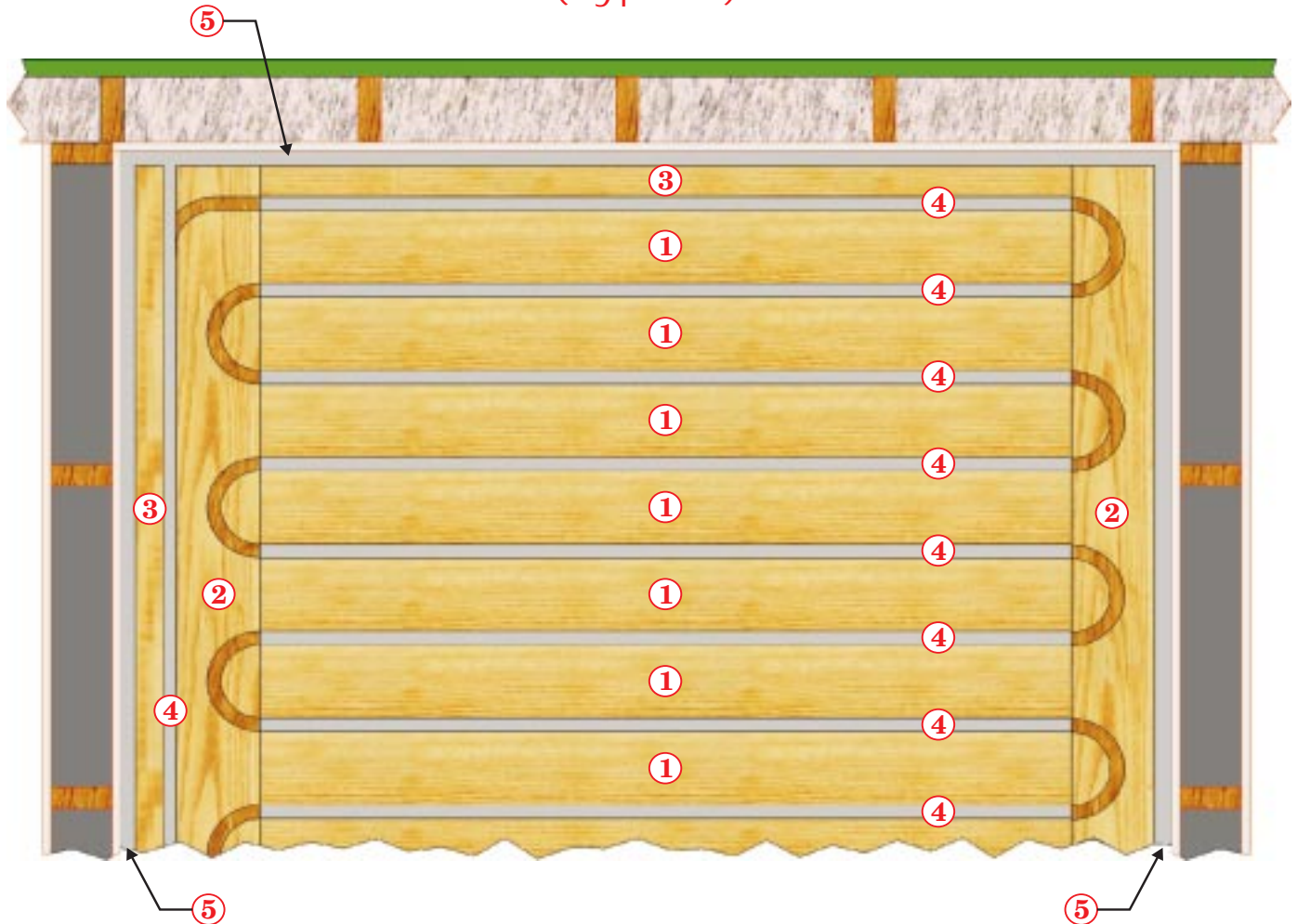




Figure 10 - Typical sleeper layout and installation

## SLEEPER LAYOUT - ABOVE FLOOR (Typical)



These drawings are conceptual only. Consult Weil-McLain Radiant Guides or Software for actual project layout.

### ① SLEEPERS

- Typically sleepers are 1 x \_\_\_ lumber or 3/4" CDX plywood. (*Width of sleeper is equal to the required tube spacing less 1 inch.*)
- Space 1" apart as shown to provide room for heat emission plate tubing channel and for thermal expansion.
- Begin at one side of the room. Place a 1 x 4 spacer (item 3) 1/4" from wall as shown.
- Leave a 1" gap between spacer and first sleeper. Then glue and nail sleepers in place.

### ② END SUPPORT SLEEPERS

- Typically cut from 3/4" plywood. (*Width of end sleepers should equal tube bend radius plus 4 inches.*)
- Use a router and circle cutting template or fixture to route 3/4" wide x 5/8" deep channels as shown..
- Place the end supports about 1/4" from the wall to allow room for expansion. Then glue and nail in place.

### ③ SPACERS

- Typically 1 x 4 furring strips.
- Place spacers about 1/4" from the wall to allow room for expansion. Then glue and nail in place.
- Use a spacer between the wall and one of the end support sleepers to provide a channel for the tubing to leave the room as shown.

### ④ TUBING PATH

- Provide a 1" gap between spacer and end support sleeper for routing tubing out of room. This will allow placement of a heat emission plate along this route.

### ⑤ PROVIDE GAP AROUND PERIMETER

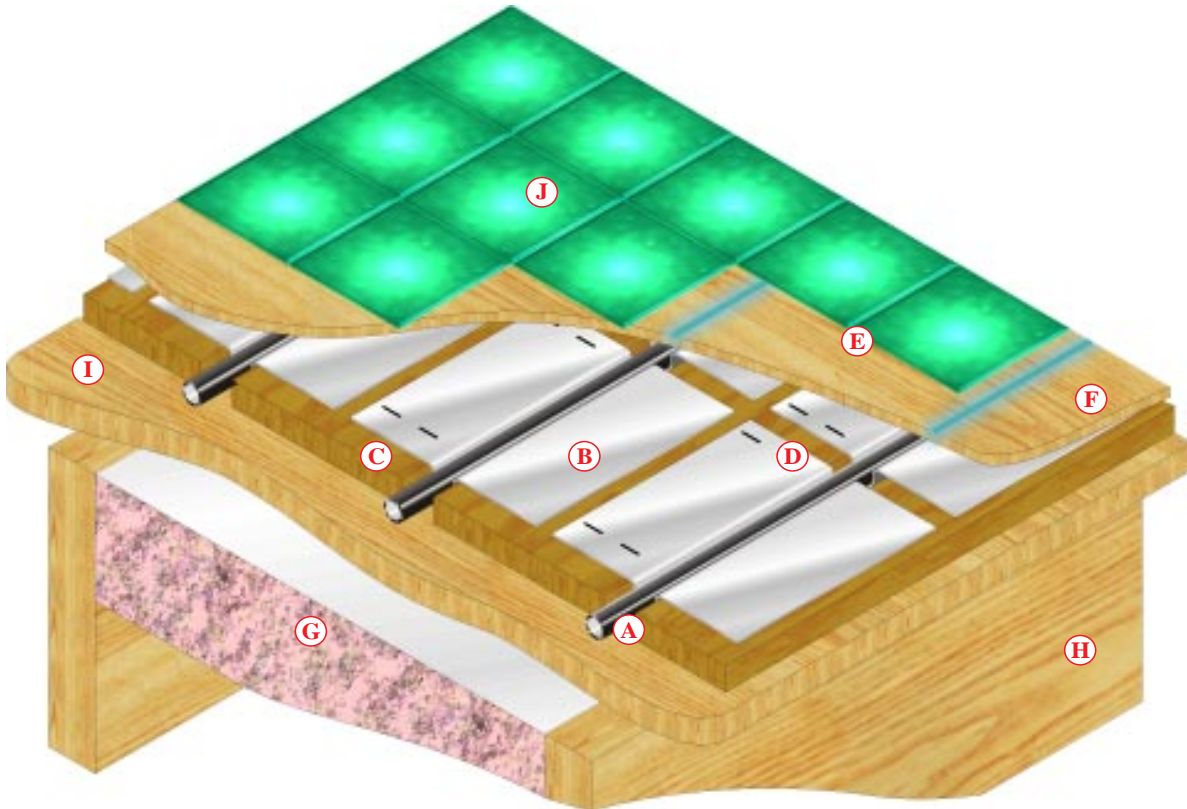
- Provide 1/4" gap around entire perimeter of room to allow for expansion.



## AlumiPex Radiant Tubing

Figure 11 - Typical above floor installation

### ABOVE FLOOR INSTALLATION



This drawing is conceptual only. Consult Weil-McLain Radiant Guides or Software for actual project layout.

#### **A** AlumiPex Tubing, 1/2"

- Use AlumiPex tubing, 1/2", commonly spaced on 6½-inch centers as shown (equal to 5½" for the sleeper plus 1" gap).

#### **B** AlumiPex Heat Emission Plates

- Use AlumiPex Heat Emission Plates to distribute the heat evenly to the floor above. Space plates from 1/4" to 1" apart end to end to allow for thermal expansion.

#### **C** Sleepers

- Glue and nail 1 x \_\_\_ wood sleepers to the subflooring, starting from one side of the room and working toward the other.
- Leave a 1" gap between sleepers to provide room for the heat emission plate groove.

#### **D** Staples

- Secure each 2-foot long plate to the sleepers with 5/8" staples. Staple one side only to allow the plates to level out as the top subfloor or finish wood flooring is applied..

#### **E** Cover Sheet

- A cover sheet must be used if the finished flooring will be carpet, tile, vinyl or laminated hardwood.

#### **F** Mark the Tubing Locations

- Always mark the top subfloor with a chalk line or other mark to clearly show the location of the tubing underneath, ensuring the tubing won't be penetrated by fasteners.
- Pay extra attention to marking the tubing bend locations as well.

#### **G** Poly-wrapped Insulation

#### **H** Joists

#### **I** Subflooring

#### **J** Finished Flooring



## J. Pressure Test the Finished Tubing Installation

1. **After all tubing has been routed and connected to the manifold, pressure test all tubing circuits before finished flooring is installed. Refer to AlumiPex Manifold Instructions.**
2. **Isolate the AlumiPex manifolds and tubing from any other piping.**
3. **Attach a pressure gauge with a 150 psig scale range to the manifold using a high pressure hose.**
  - Locate the gauge so it can be read during all phases of construction.
4. **Fill the system for pressure test with water only if there is no freeze potential.**
  - You will need to keep the system pressurized as discussed in the next section.
  - So the fluid used for testing would have to remain in place.
  - You must be sure, if using water, that no freeze potential would exist from time of installing pipe until time for you to complete the system piping and fill the system for start-up.
5. **If there is freeze potential, fill the system with air and perform the pressure test using air.**
  - If using air, remove all air vents from the manifolds and plug the openings.
6. **Pressurize the system to between 70 and 100 psig for 30 minutes.**
  - a. Observe the pressure on the gauge.
    - b. The pressure should not drop unless testing with air on a cold day.
      - On cold days, air pressure testing will show a drop as the air in the tubing cools off. But the pressure should reach a steady level and drop no further.
      - If the pressure does drop, check the connections at the manifolds first.
    - c. Examine the system for leaks. Repair any leaks found and repeat the test.
    - d. Check threaded joints with leak detection fluid (soap mixture if using air).

**WARNING** When pressure testing with air, or when air is left anywhere in the system being pressurized, there is a risk of explosive discharge of compressed air or water if a leak or break occurs. Do not leave these pressure tests unattended while others are present. Remove all non-essential persons from the area during pressure testing. Failure to follow these guidelines could lead to severe personal injury, death or substantial property damage.

**WARNING** Failure to check for and repair leaks can result in damage to system components and the premises, causing severe personal injury, death or substantial property damage.



### L. Connect System Piping & Heating System Components

1. Install piping and heating system components if framing is in place.
3. Don't solder within 18 inches of tubing.
3. Cover tubing to protect it from solder drip.
4. Never apply an open flame to AlumiPex tubing.
5. Pressure test sytem piping to verify there are no leaks.

### K. Pressurize Tubing for Observation

1. After the system has been proven leak free, pressurize all tubing circuits to 30 psig.
  - Maintain this pressure on the tubing for the remainder of the building construction.
  - Pressurizing the tubing allows use of the pressure gauge to verify the integrity of the tubing and connections.
  - Periodically observe the pressure gauge to make sure no major drop in pressure occurs. A pressure drop would indicate a puncture or leak.

### M. Before Leaving the Jobsite . . .

1. Before leaving the jobsite, we recommend you meet with the general contractor to review the AlumiPex Trade Guides.
  - Make special note of the pressure gauge. It can be used by all trades to check the integrity of the tubing throughout the construction of the building.
  - Review traffic recommendations.
  - Ask for early notification of the schedule for installing finished flooring so you can inspect the installation a day before this starts.
  - If possible, get an agreement that the flooring won't be installed until you have inspected the installation and given your release.
2. Make a record of your installation
  - We suggest you take photographs of the tubing and manifolds.
  - Use the photographs and notes on the tube layout drawing to document installation details.



### N. Inspect Tubing Before Finished Flooring Installation

**1. Arrange to inspect the installation a day before the scheduled finished flooring installation starts.**

- Check the pressure gauge to verify the system is still pressurized at or near 30 psig.
- Visually inspect all tubing to verify there is no damage.
- Repair any damage you find.
- Advise the general contractor of your findings and release for finished flooring installation.

### O. Inspection, Repair and Troubleshooting

**1. Inspect the tubing connections and piping as the job is completed.**

**2. Perform a final pressure test on the system after all flooring is in place and building is ready for occupancy to verify all joints are tight and no damage has occurred to the tubing during construction.**

**3. Repair of kinked or crushed tubing:**

- Use a copper pipe truer to restore the tubing roundness.
- If the damage is so severe that this cannot be done, cut out the damaged section of tubing.
  - Cut a new length of tubing long enough to span the gap.
  - At each end of the splice section, install an AlumiPex coupling.
  - Slip a length of heat shrink tubing over each end before tightening the couplings.
  - Tighten couplings. Then seal them with the heat shrink tubing.
  - Route a groove in the subflooring deep enough to accommodate the finished repair section.
  - Mark the location of any such repairs on the tube layout drawing



**AlumiPex Radiant Tubing**



**WEIL-McLAIN**  
A United Dominion Company

Weil-McLain  
500 Blaine Street  
Michigan City, IN 46360-2388  
<http://www.weil-mclain.com>



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