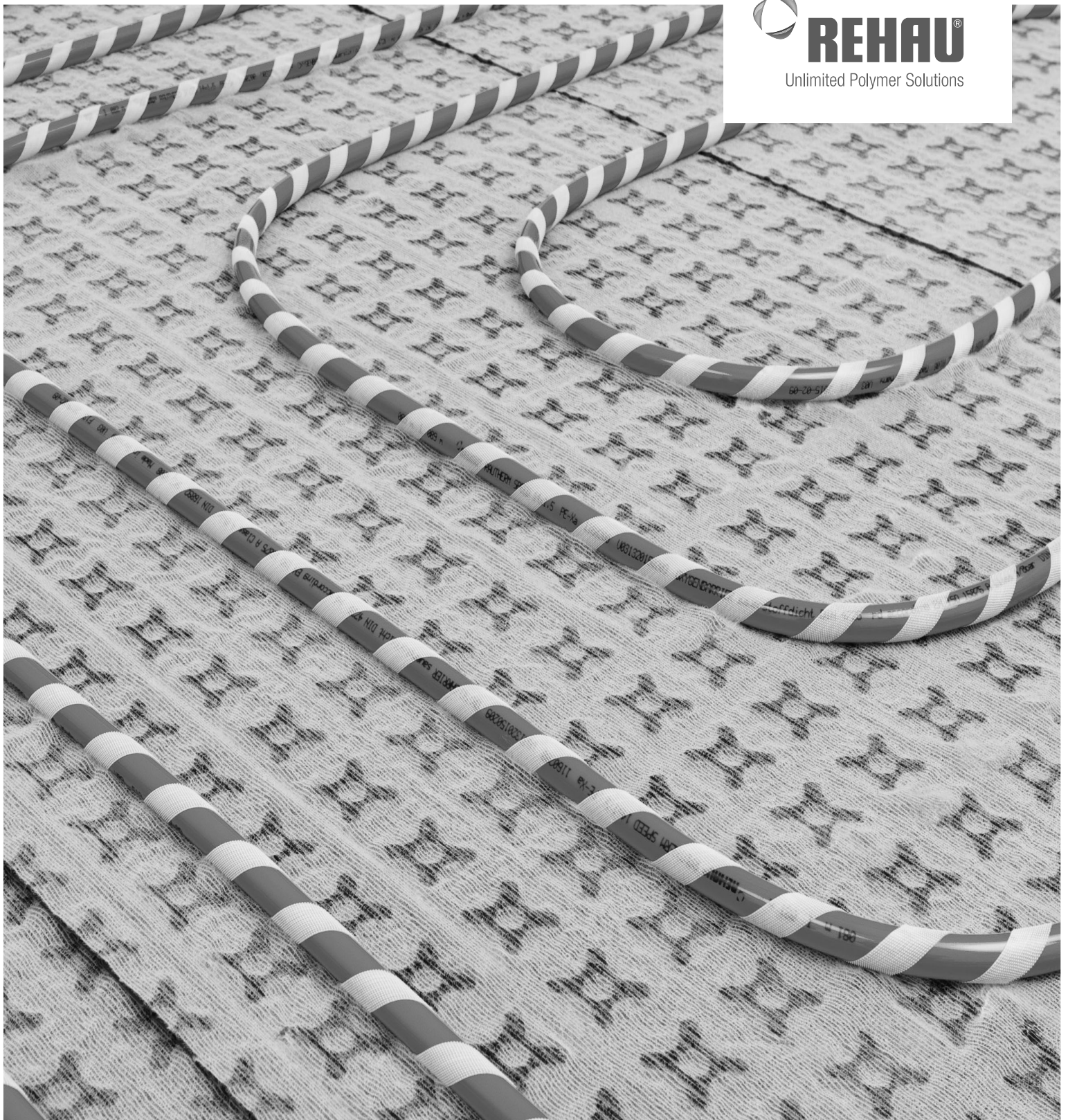




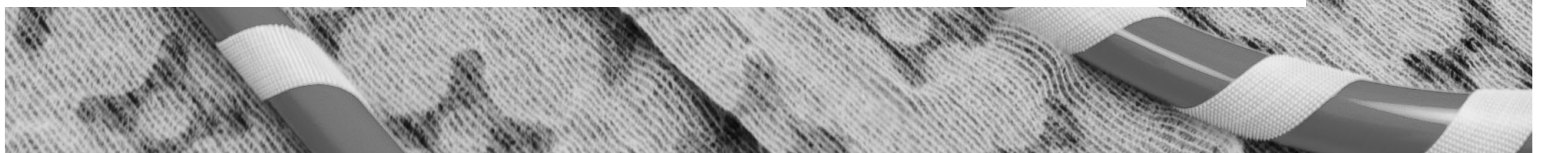
REHAU®

Unlimited Polymer Solutions



RAUPEX® SPEED RADIANT SYSTEM

Installation Guide



CONTENTS

1. SCOPE

1. Scope	2	This technical information applies to the RAUPEX SPEED Hook-and-Loop System intended for use in hydronic floor heating/cooling applications.
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6. Laying RAUPEX SPEED O₂ Barrier Pipe	11	RAUPEX SPEED may only be configured, installed and operated as described in this manual and the corresponding technical information. Any other use is deemed to be inappropriate and is not permissible.

Nothing in this guide supersedes national or local code requirements or the recommendations of other manufacturers regarding their components. Observe all applicable national, state and local laws, regulations, standards, codes and ordinances. If you believe REHAU product information conflicts with applicable code requirements, industry standards, or the recommendations of other manufacturers regarding their components, contact the REHAU distributor in your area and consult with the building authority having jurisdiction before installing the RAUPEX SPEED system.

Before starting installation read the REHAU *PEXa Limited Warranty*, available at www.na.rehau.com/warranties. It can also be obtained from your authorized REHAU distributor or by writing to REHAU Construction LLC, 1501 Edwards Ferry Road NE, Leesburg VA 20176 US.

Proper installation is the responsibility of the installing contractor. Review the REHAU *Technical Guidelines* prior to installation of the FIREPEX system. REHAU *Technical Guidelines* are defined in the REHAU *PEXa Limited Warranty* as: The most current and applicable versions of all the technical literature available on the REHAU North America website at www.na.rehau.com/resourcecenter, including, but not limited to, technical manuals, instruction guides, technical bulletins, submittals and REHAU Academy training presentations. Check the REHAU Resource Center (www.na.rehau.com/resourcecenter) for the latest updates.

Contact the REHAU distributor in your area if you do not understand the information in this manual or if you have questions about the REHAU *Technical Guidelines*.

2. SAFETY WARNINGS

This manual contains safety-related information that requires your special attention. It is indicated with the safety alert symbol and the signal words described below:

⚠ DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a risk of property damage.

Follow the instructions in this manual and other REHAU *Technical Guidelines* and use common sense to reduce the risk of injury or property damage.

⚠ CAUTION



To reduce the risk of injury, read this instruction manual along with all cautions before assembly or operation. Keep this manual.

⚠ CAUTION

- Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in personal injury or property damage.
- Save all warnings and instructions for future reference.
- Keep work area clean and well lit. Cluttered or dark areas invite accidents.
- Keep children and bystanders away during installation. Distractions can cause you to lose control.
- Use personal protective equipment. Protective equipment such as dust mask, hard hat, eye protection or hearing protection used for appropriate job site conditions will reduce the risk of personal injuries.
- Dress properly. Do not wear loose clothing or jewelry. Keep hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.

NOTICE

- Excessive temperatures can overheat and damage the floor structure and coverings leading to discoloration, delamination, warping, cracking or deterioration.
- RAUPEX SPEED must be installed in accordance to a properly specified radiant heating system design
- Verify floor products are approved for use with radiant systems
- Check floor temperatures are within the limitations set by the manufacturer of the floor coverings, underlayments, adhesives and grouts.

3. MAIN PARTS / SPECIFICATIONS

The RAUPEX SPEED system is designed to use the "hook and loop" fastening system where the "loop" is the mat or iBoard and the "hook" is the pipe. This installation method reduces installation time for overpour (wet) radiant installations.

RAUPEX SPEED system components

- RAUPEX SPEED Mat
- RAUPEX SPEED iBoard R5
- RAUPEX SPEED iBoard R10
- 1/2 in. RAUPEX SPEED O₂ Barrier pipe
- RAUPEX Horizontal Uncoiler
- RAUPEX SPEED Door Spreader
- RAUPEX SPEED iBoard Tape

Additional items required for installation:

- RAUPEX pipe cutter
- Utility knife
- Ruler
- (2) Adjustable wrenches

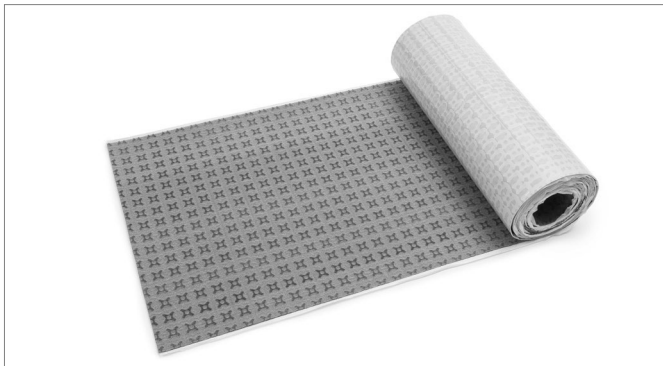


Fig. 3.1 RAUPEX SPEED Mat



Fig 3.4 Horizontal Uncoiler

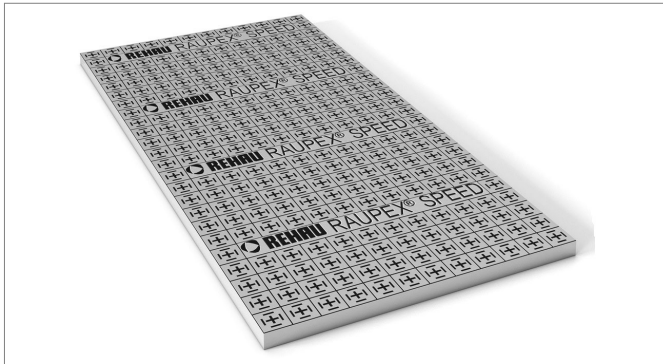


Fig. 3.2 RAUPEX SPEED iBoard R5 and R10



Fig 3.5 RAUPEX SPEED Door Spreader



Fig. 3.3 RAUPEX SPEED O₂ Barrier Pipe

RAUPEX SPEED Mat Functional Description

The RAUPEX SPEED mat has a self-adhesive backing which allows it to be installed on different thermal insulation, concrete and plywood surfaces. The "loop" part of the "hook-and-loop system" on the mat's surface and the "hook" material on the RAUPEX SPEED O₂ barrier pipe fasten together instantly. A grid pattern on the mat enables fast and accurate pipe layout.

RAUPEX SPEED iBoard Functional Description

The RAUPEX SPEED iBoard combines an expanded polystyrene board with the hook-and-loop fastening system for radiant overpour applications. The hook-and-loop tape on the RAUPEX SPEED pipe fastens to the loop surface of the iBoard. The imprinted grid pattern on the iBoard enables fast and accurate pipe layout.

Technical Data

Material	Package Quantity	Insulation R-value (material only)	Thickness	Dimensions	Coverage Per Article	Compressive Resistance (as per ASTM D1621)	Max Temperature
RAUPEX SPEED Mat	1 roll		0.10 in. (3.0 mm)	52.9 x 3.1 ft (16.1 x 0.94 m)	160 ft ² (14.86 m ²)		
RAUPEX SPEED iBoard R5	10 sheets per bundle	5	1.25 in. (31.75 mm)	4 x 8 ft (1.2 x 2.4 m)	320 ft ² (29.73 m ²)	10 psi @ 10% deflection	180°F
RAUPEX SPEED iBoard R10	5 sheets per bundle	10	2.38 in. (60.45 mm)	4 x 8 ft (1.2 x 2.4 m)	160 ft ² (14.86 m ²)	25 psi @ 10% deflection	180°F

Material Planning

For quick estimating purposes, the following guidelines may be of use for estimating the number of rolls needed for your application. This material estimating information is not intended to be used for any particular project, nor as a final drawing requirement or specification, and is only provided as an aid for quick quotation purposes. REHAU LoopCAD® radiant design software is recommended for calculating material lists for any particular project.

Material	Overpour Area ft ²		Material Estimating Factor		Estimated Material Requirements (round up)
RAUPEX SPEED Mat	_____	÷	160 ft ² / roll (14.86m ²)	=	_____ Rolls
RAUPEX SPEED iBoard R5	_____	÷	320 ft ² / board (29.73 m ²)	=	_____ Bundles
RAUPEX SPEED iBoard R10	_____	÷	160 ft ² / board (14.86 m ²)	=	_____ Bundles

4. INSTALLING RAUPEX SPEED MAT

Proper Use and Handling

The RAUPEX SPEED mat is intended for use with radiant heating or cooling inside buildings. The area where the mat will be applied should be free of dust, dirt and moisture to aid in the adherence of the glue-backed mat to the substrate.

The mat can be installed on different types of substrates:

- Screeds
- Concrete
- Ceramic floor coverings
- Plaster and cement slabs
- Fiberboard, chipboard or plywood

Suitable insulation materials as substrate:

- Expanded polystyrene EPS
- Extruded polystyrene XPS
- Polyurethane insulation boards
- Wood fiber insulation boards

Note: Fiber insulating materials and loose fills are not suitable as substrates for the RAUPEX SPEED mat as these materials will not provide a continuous bond with adhesive on the back of the mat.

NOTICE

- Do not expose RAUPEX SPEED mat or pipe to direct sunlight. Store products in a dry area, inside building.
- The installation temperature of the product and substrate should be 32 to 95°F (0 to 35°C). If temperature is below 32°F (0°C), the adhesive will not bond to the substrate. If the temperature is above 95°F (35°C) overlapping seams will lift.
- RAUPEX SPEED mat is not approved to replace a vapor barrier. If required by prevailing local codes, an approved vapor barrier must be installed before the mat.

Maintaining Proper Overlap

Minimum overlaps of the RAUPEX SPEED mat must be maintained during installation. Overlaps must be firmly pressed down with the foot.

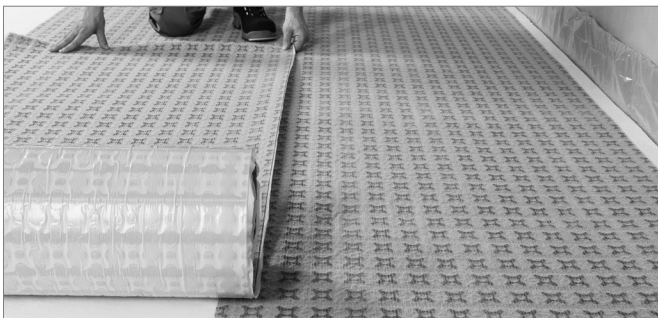


Fig 4.1 Overlap of 2 in (5 cm) on long edges

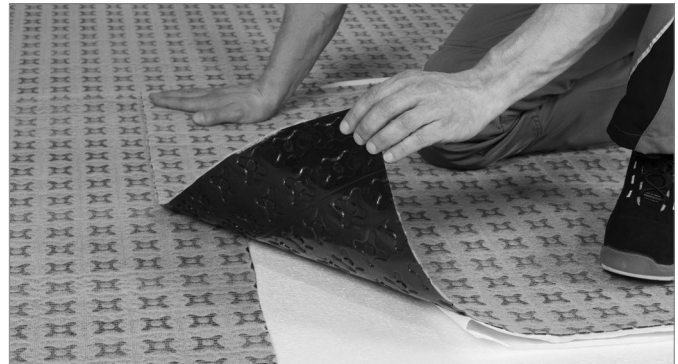


Fig 4.2 Overlap of 4 in (10 cm) on cross (perpendicular) edges

NOTICE

Cross joints must be avoided when laying RAUPEX SPEED mat, maintain proper overlap throughout installation.

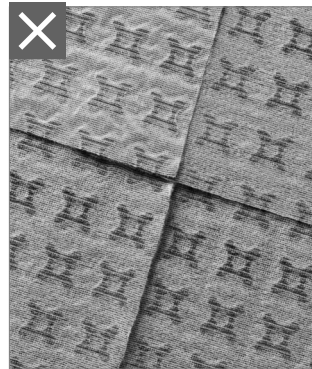


Fig 4.3 Mat with cross joints

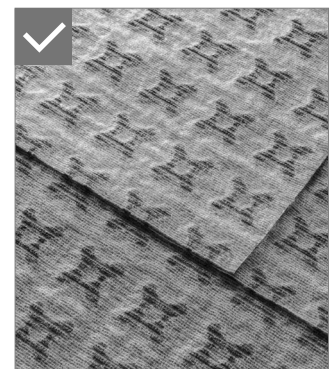


Fig 4.4 Mat without cross joints

Installing RAUPEX SPEED Mat

1. Remove self-adhesive roll from foil bag.
 - Cut the adhesive tape carefully, making sure not to damage the mat.

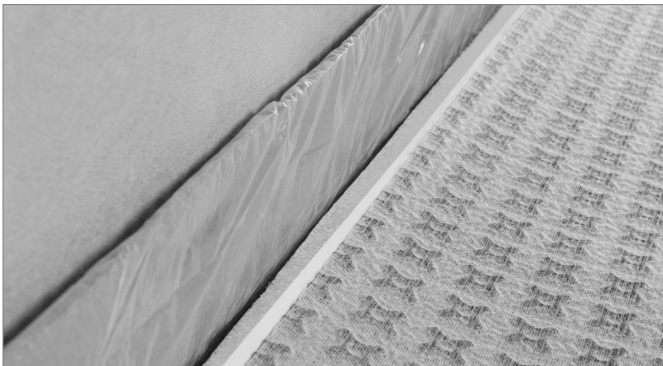


2. Align self-adhesive mat.

- Lay the mat flat to the substrate and roll out approximately 6 to 9 ft (2 to 3 m) of the mat.



- Align the mat approximately 2 in (5 cm) from the adjacent wall.



Note: One person can align the mat in rooms up to approximately 16 ft (5 m) long. In larger rooms with wall lengths greater than 16 ft (5 m), two persons should align the mat.



3. Position the mat.

- Walk on the aligned mat on the face side and lift the start of the mat near the adjoining wall.
- Peel back approximately 12 in (30 cm) of the cover foil from the back of the mat and fold it smooth to the back.



- Attach the mat with the freed adhesive area on the insulation layer or substrate and press it down evenly.
- Roll the mat backwards toward the adhered part.



4. Affix the mat.

- Grab cover foil from bottom of mat
- Walk backward, using caution, pulling on the cover foil and unrolling the mat evenly, keeping a distance of approximately 2 in (5 cm) from the adjacent wall.



Note: When affixing over the foil foot, do not exceed the maximum allowable distance of 2.5 in (6 cm) from the back wall to the edge insulation strip.

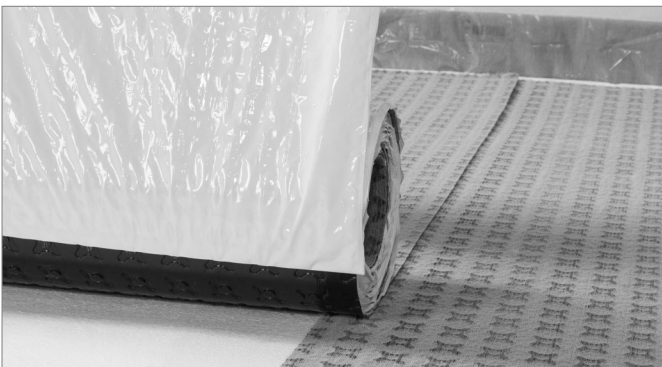
5. Cut mat to length.

- At the end of the room, fold the mat back and adjust.
- Cut the mat to length.
- If necessary roll the cut end against the mat.

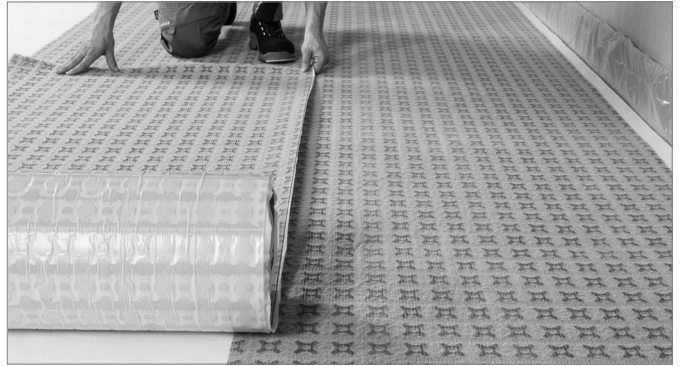


6. Align adjacent mat.

- Overlap the second piece of mat to the affixed piece with a minimum overlap of 2 in (5 cm) on the long edge. Align the pattern of the first and second piece flush with each other.
- Press down overlap with foot.

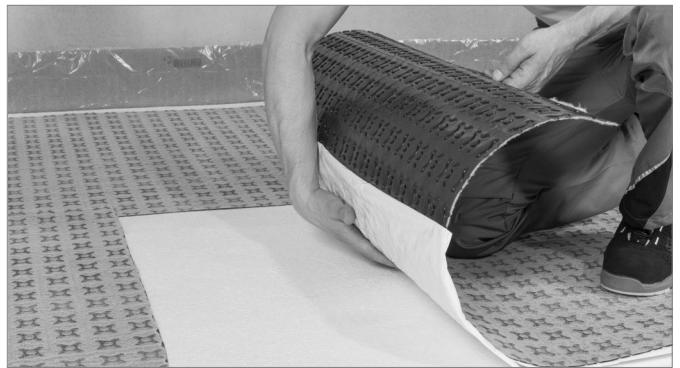


- Unroll the second piece of mat approximately 6 to 9 ft (2 to 3 m) and align parallel to the first piece while maintaining the minimum overlap of 2 in (5 cm).



7. Position adjacent mat.

- See "3. Position the mat"



8. Affix adjacent mat.

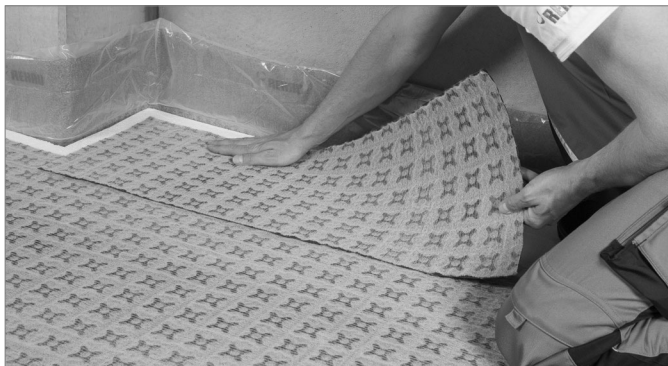
- See "4. Affix the mat"



Note: because the RAUPEX SPEED mat is self-adhesive, it is not necessary to use an additional adhesive strip on the top to attach the mats to each other. The mat is sealed to prevent ingress of water used for mixing screed by the adhesive overlap.

9. Cover the remaining areas.

- Small niche areas can be covered with leftover pieces of the mat.
- Measure the installation area that is to be sealed and cut the mat to length, while retaining the proper overlap.
- Align the section, peel back cover foil and fix mat to the underlying insulation layer or substrate.



5. INSTALLING RAUPEX SPEED iBOARD

NOTICE

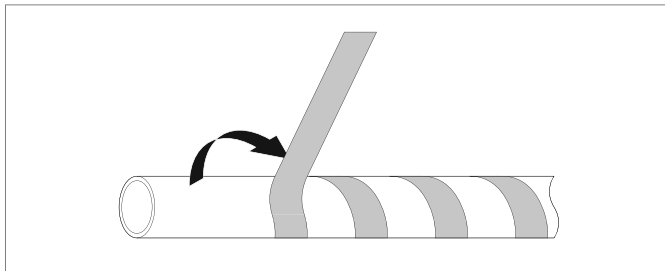
Before beginning site preparation and installation of RAUPEX SPEED iBoard, read and follow all published technical documents and product instructions provided by Northwestern Ohio Foam Products, Inc. (NOFP) at www.nofp.com or call 800-339-4850.

Equivalencies

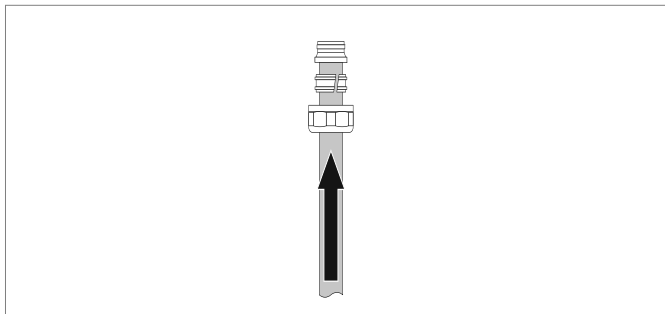
- RAUPEX SPEED iBoard R5 = NOFP BarrierX5™
- RAUPEX SPEED iBoard R10 = NOFP XBoard™

6. INSTALLING RAUPEX SPEED O₂ BARRIER PIPE

1. Place RAUPEX horizontal uncoiler outside of the room and install RAUPEX SPEED door spreader with pipe guide in doorway to keep pipe from being in contact with RAUPEX SPEED mat or iBoards while installing pipe.
2. Remove the hook tape.
 - Remove the hook tape approximately 2 in (5 cm) from the end of the pipe in order to install the pipe to the REHAU PRO-BALANCE® manifold.



3. Connect to manifold.
 - Using a RAUPEX R-20 brass manifold outlet connect the RAUPEX SPEED O₂ barrier pipe to the PRO-BALANCE manifold. See REHAU *PRO-BALANCE Manifold Product Instructions* (855.661) for proper installation.



4. Lay pipe.
 - Install RAUPEX SPEED O₂ barrier pipe on the RAUPEX SPEED mat or iBoard by pressing down lightly.



For most installations, a counter-flow spiral pipe pattern is suggested.



Note: The RAUPEX SPEED O₂ barrier pipe must be laid at a distance of 2.5 in. (6 cm) from the wall. Refer to REHAU *Radiant Heating Systems Design Guide* (855.601) for proper spacing and layout.

Note: In areas where RAUPEX SPEED O₂ barrier pipe may lift from the iBoard, use the appropriate-sized foam staples to keep pipe in place. For 180° bends use a staple at the start, middle and end of the bend.

5. Perform pressure test as per REHAU *Radiant Heating Installation Guide* (855.603).

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