

Underfloor heating system
Riscaldamento a pavimento



EVO-DRY

Underfloor heating and cooling with minimum construction height
Sistemi a pavimento per la ristrutturazione



INSTALLATION MANUAL
MANUALE DI INSTALLAZIONE



SAFETY WARNINGS - AVVERTENZE PER LA SICUREZZA

Please, read this manual before installation and/or use of the equipment and keep it in an accessible place.

This equipment is part of complex installation; the designer's responsibility has to draw up the thermal diagram and statically verify the supporting structures.

The manufacturer's technical department is available at the phone numbers listed on the back of this manual for advice or particular technical requests.

CAUTION

Installation and maintenance should be performed by qualified personnel only.

Hydraulic systems and rooms in which the equipment is to be installed must meet the required standards regarding safety, accident and fire prevention currently in force in the country of use.

Leggere con attenzione questo manuale prima dell'installazione e/o dell'uso dell'apparecchiatura e conservarlo in un luogo accessibile.

La presente apparecchiatura costituisce un componente che fa parte di installazioni complesse: è compito del progettista redigere lo schema termico e verificare staticamente le strutture portanti.

L'ufficio tecnico del Costruttore si rende disponibile ai numeri indicati sul retro del presente manuale per consulenze o richieste tecniche particolari.

ATTENZIONE

L'installazione e la manutenzione vanno eseguiti solo da personale qualificato.

Gli impianti idraulici ed i locali di installazione delle apparecchiature devono rispondere alle norme di sicurezza, antinfortunistiche e antincendio in vigore nel Paese di utilizzo.



GENERAL WARNINGS - AVVERTENZE GENERALI

- If after unpacking the packages any anomaly is noted, do not proceed with the installation and call an authorized service centre of the manufacturer.*
- After installation, dispose of the packaging as required by regulations currently in force in the country of use.*
- Always demand genuine parts: failure to observe this rule will invalidate the warranty.*
- The manufacturer will not be held responsible under any circumstances for the following cases:*
 - Where the safety regulations and safety standards outlined above are not complied with, including those in force in the country of installation.*
 - Failure to follow the directions contained in this manual.*
 - Damage to people, animals or property resulting from improper installation and/or misuse of products or equipment.*
 - Inaccuracies or typographical or transcription errors and in this manual.*
 - Furthermore, the manufacturer reserves the right to stop production at any time and to make any changes they deem necessary or useful, without the obligation of prior notice.*

- Se dopo aver disimballato i colli si nota una qualsiasi anomalia, non procedere all'installazione e rivolgersi ad un Centro di Assistenza autorizzato dal Costruttore.
- Alla fine dell'installazione smaltire gli imballi secondo quanto previsto dalle normative in vigore nel Paese di utilizzo.
- Esigere solo ricambi originali: la mancata osservazione di questa norma fa decadere la garanzia.
- Il Costruttore declina ogni responsabilità nei casi seguenti:
 - Non vengano rispettate le avvertenze e le norme di sicurezza sopra indicate, comprese quelle vigenti nei paesi di installazione.
 - Mancata osservanza delle indicazioni segnalate nel presente manuale.
 - Danni a persone, animali o cose, derivanti da una errata installazione e/o uso improprio di prodotti e attrezzature.
 - Inesattezze o errori di stampa e trascrizione contenuti nel presente manuale.
- Il Costruttore, inoltre, si riserva il diritto di cessare la produzione in qualsiasi momento e di apportare tutte le modifiche che riterrà utili o necessarie senza obbligo di preavviso.



WARNING

Before laying the FLOORING , carefully read the instructions mentioned in this chapter.



ATTENZIONE

Prima di iniziare la posa dei RIVESTIMENTI consultare attentamente le indicazioni riportate nel relativo capitolo



DISPOSAL - SMALTIMENTO



Pursuant to the provisions contained in the following European Directives: 2002/95/EC, 2002/96/EC and 2003/108/EC, relating to the use of hazardous substances in electrical and electronic equipment, as well as waste disposal.



In base a quanto previsto dalle seguenti direttive europee 2002/95/CE, 2002/96/CE e 2003/108/CE, relative alla riduzione dell'uso di sostanze pericolose nelle apparecchiature elettriche ed elettroniche, nonché allo smaltimento dei rifiuti.

The symbol of the crossed-out wheeled bin as shown on the product indicates that at the end of its useful life it must be disposed of separately from other waste.

The user must therefore dispose of the above equipment at the end of its useful life at an appropriate centre for the collection of electronic and electro-technical waste, or return it to the dealer when purchasing a similar new device in terms of one to one.

Proper waste collection leading to the subsequent recycling, treatment and environmentally friendly disposal of the equipment helps to avoid possible negative effects on the environment and on health and promotes the recycling of the materials of which the equipment is made up.

Illegal disposal of the product by the user will lead to the application of penalties prescribed by current legislation in force.

Il simbolo del cassonetto barrato riportato sull'apparecchiatura indica che il prodotto alla fine della propria vita utile deve essere raccolto separatamente dagli altri rifiuti.

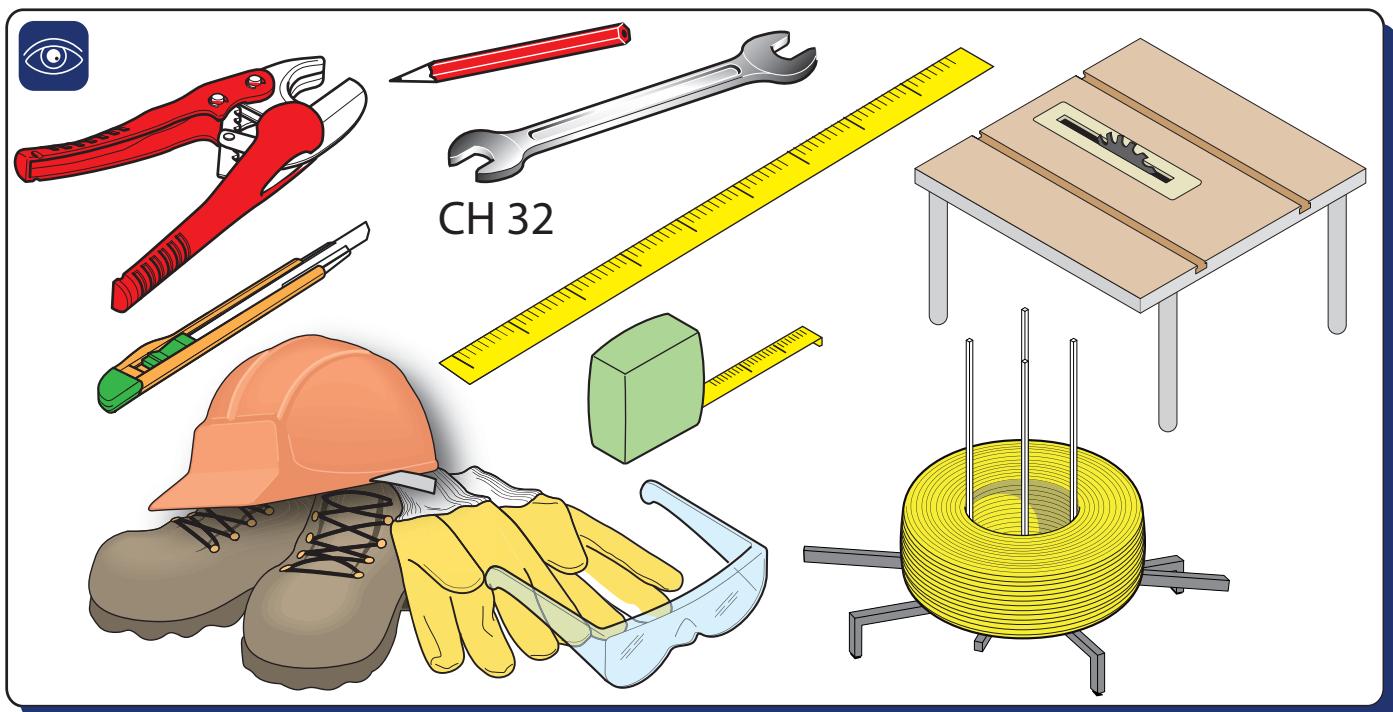
L'utente dovrà, pertanto, conferire l'apparecchiatura giunta a fine vita negli idonei centri di raccolta differenziata di rifiuti elettronici ed elettrotecnici, oppure riconsegnarla al rivenditore al momento dell'acquisto di una nuova apparecchiatura di tipo equivalente, in ragione di uno a uno.

L'adeguata raccolta differenziata per l'avvio successivo dell'apparecchiatura dismessa al riciclaggio, al trattamento e allo smaltimento ambientale compatibile contribuisce ad evitare possibili effetti negativi sull'ambiente e sulla salute e favorisce il riciclo dei materiali di cui è composta l'apparecchiatura.

Lo smaltimento abusivo del prodotto da parte dell'utente comporta l'applicazione delle sanzioni previste dalla vigente normativa in materia.



NECESSARY EQUIPMENT - ATTREZZATURA E D.P.I. NECESSARI





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1 | PRELIMINARY OPERATION - OPERAZIONI PRELIMINARI

TESTING, TRANSPORT AND UNPACKAGING

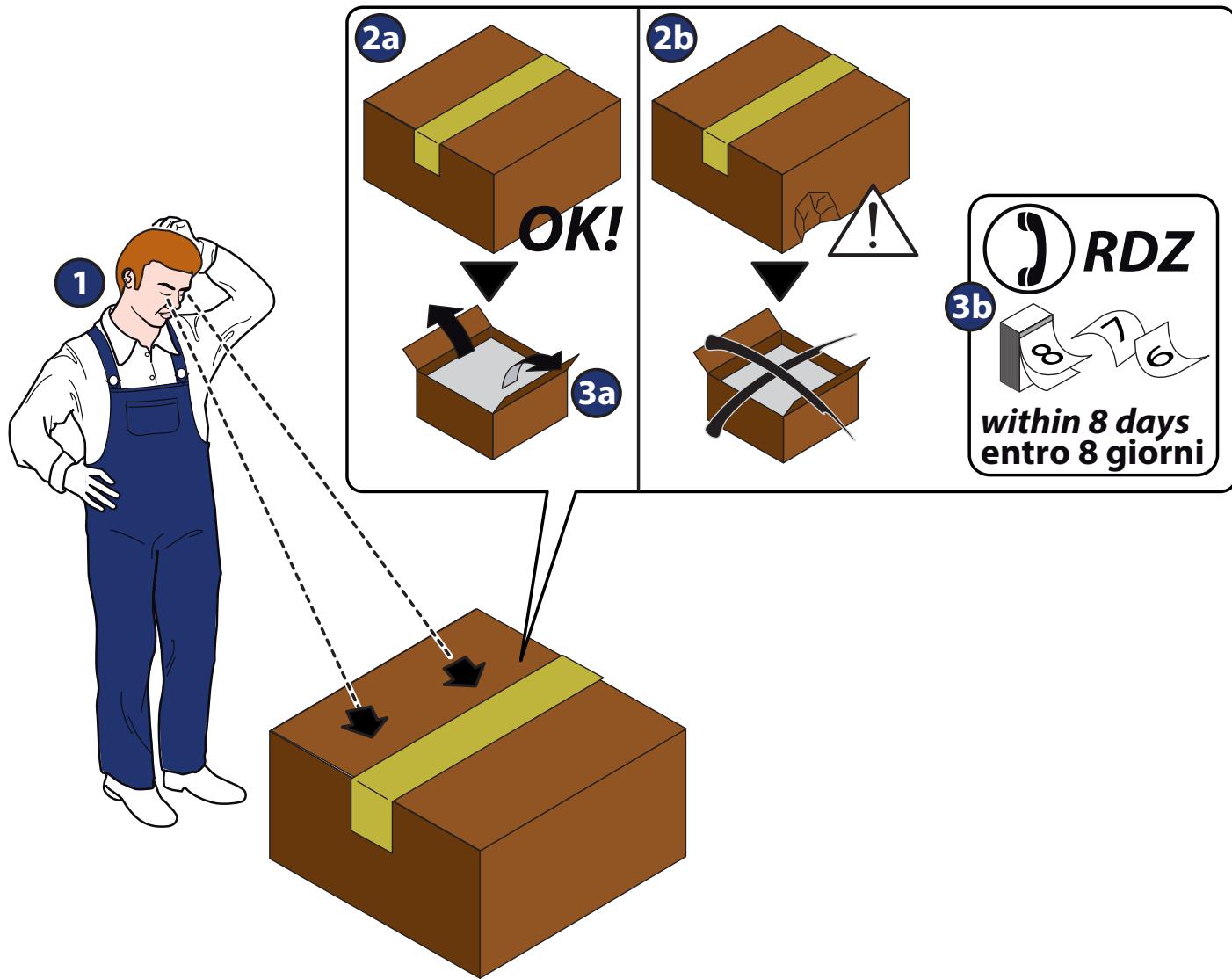
Upon receipt, check immediately that the packaging is intact: the material has left the factory in perfect working order and any damage must be notified to the carrier immediately and noted on the Delivery Sheet before it is countersigned.

Within 8 days, the customer must notify the manufacturer of the extent and type of the damage noted, making a written report.

ISPEZIONE, TRASPORTO E DISIMBALLO

All'atto del ricevimento verificare immediatamente l'integrità dell'imballo: il materiale ha lasciato la fabbrica in perfetto stato, eventuali danni dovranno essere immediatamente contestati al trasportatore ed annotati sul Foglio di Consegnna prima di controfirmarlo.

Il Cliente, entro 8 giorni, deve avvisare il Costruttore sull'entità e la tipologia dei danni rilevati compilando un rapporto scritto.



! The unit packaging must be removed with care, ensuring that the material is not damaged.

The materials which make up the packaging are different: wood, cardboard, nylon etc.

Store them separately and deliver them for disposal or, where appropriate, recycling, to the relevant companies, thus reducing the environmental impact.

! L'imballo dell'unità deve essere rimosso con cura evitando di arrecare possibili danni ai materiale.

I materiali che costituiscono l'imballo sono di natura diversa: legno, cartone, nylon, ecc. Conservarli separatamente e consegnarli per lo smaltimento o l'eventuale riciclaggio, alle aziende preposte allo scopo e ridurne così l'impatto ambientale.

2 | DESCRIPTION - DESCRIZIONE



EVO-DRY is a dry underfloor system for renovated buildings or new ones, where you do not want to use concrete.

Thanks to a special panel it is possible to install a radiant system with lower thickness than traditional underfloor systems (necessary thickness is about 3,5 cm flooring excluded).

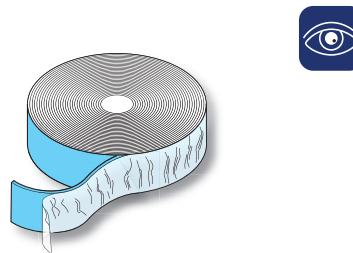
EVO-DRY è un sistema di riscaldamento a pavimento "a secco", appositamente studiato per le ristrutturazioni o per le nuove costruzioni dove non si vuole utilizzare il massetto in cemento. Grazie allo speciale pannello è possibile realizzare un impianto con spessori ridotti rispetto a quelli richiesti tradizionalmente negli impianti a pavimento (spessore richiesto circa 3,5 cm escluso il pavimento).

2.1 | DESCRIPTION OF THE COMPONENTS - DESCRIZIONE COMPONENTI

• Slim 5 perimeter belt

It absorbs floor expansions and acts as thermo-acoustic insulation for the walls. It is made of expanded polyethylene with 100% closed-cell structure, and it is provided with an adhesive strip on one side.

*Thickness 5 mm, height 50 mm.
Package: 2x25-m roll.*



• Cornice perimetrale slim 5

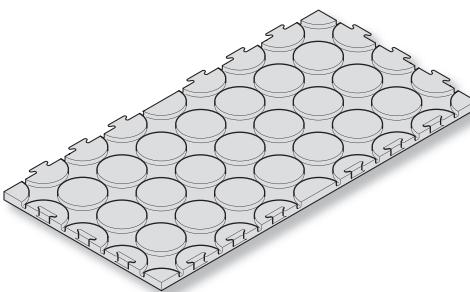
Con funzione di assorbimento delle dilatazioni del pavimento ed isolamento termoacustico delle pareti. Realizzata in polietilene espanso a struttura cellulare al 100% chiusa, dotata di banda autoadesiva su un lato.

*Spessore 5 mm, altezza 50 mm.
Confezioni 2 rotoli da 25 m*

• DRY-TECH insulating panels

Dry-Tech studded insulation panel, made of waterproof sintered polystyrene with graphite according to UNI EN 13163, closed-cell structure and high mechanical resistance. These panels have a moulded surface with special grooves so that the thermal diusers can be fitted into them to hold the pipes.

Thermal conductivity 0.035 W/(m·K). Spacing of 140-280 mm. Size: 1120x560x10 mm.



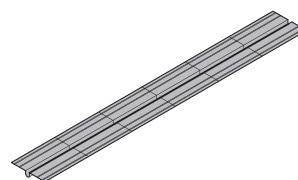
• Pannelli isolanti DRY-TECH

Pannello Dry-Tech bugnato in polistirene sinterizzato prodotto in conformità alla normativa UNI EN 13163, stampato in idrorepellenza a celle chiuse, di elevata resistenza meccanica, superficie superiore sagomata con incavi speciali per l'alloggiamento delle lamelle termoconduttrici portatubo. Conducibilità termica 0.035 W/(m·K). Passi di posa 140-280 mm.

Dimensioni: 1120x560x10 mm.

• Thermal diffusers

They are made of zinc-plated steel, thickness 0.4 mm. They are used to contain PE-Xc pipe Ø 14x2 mm and act as heat transfer. Size: 990 mm x 122 mm; groove: 14 mm.

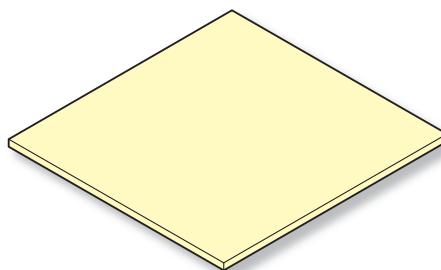


• Lamelle termoconduttrici

In acciaio zincato di spessore 0,4 mm, atte al contenimento del tubo in PE-Xc da 14x2 mm e alla diffusione del calore. Dimensioni: 990 mm x 122 mm; incavo: 14 mm.

• Weight Distribution Layer

Tongue and groove board, thickness 9 mm, made of hydrated calcium-silicate matrix reinforced with special cellulose fibres and inorganic additives. Free from asbestos, inorganic fibres, gypsum, and other hydrated mineral matrix. Thermal conductivity 0.17 W/(m·K), compressive resistance 6 N/mm², density 950 Kg/m³. Dimensions 1196x1196x9 mm. Weight 12,3 kg/m²



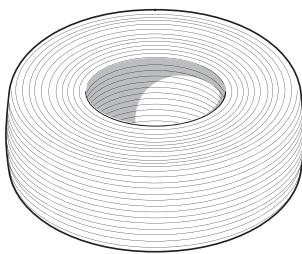
• Ripartitore di carico

Lastra realizzata in calcio silicato idrato rinforzato con fibre di cellulosa ed additivi inorganici; esente da amianto, fibre inorganiche, gesso ed altre matrici minerali idrate. Conducibilità termica 0.17 W/(m·K), resistenza alla compressione 6 N/mm², densità 950 Kg/m³. Dimensioni 1196x1196x9 mm. Peso ca. 12,3 kg/m².



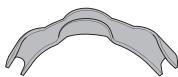
- [RDZ Tech PE-Xc Pipe Ø 14 Interior Layer](#)

RDZ Tech pipe Ø 14 made of high-density electro-physically cross-linked polyethylene with the anti-oxygen barrier between the Pe-xc layer and an outside layer made of PE, which ensures further protection during installation in the building site. The layers are combined thanks to a special glue. This pipe is produced according to UNI EN ISO 21003/2 and DIN 4726, guaranteeing even and stable cross-links and constant characteristics over time.



- [Open elbow](#)

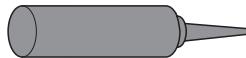
Open elbow Ø14 made of plastic material. It is used to support the pipes near the manifolds vertically and to protect them from any damage.



- [Dry-Tech Glue](#)

Glue made of hardening special resin used to fix the Dry-Tech panel to the floor as to make the pipe installation easier.

Dosage: 1 can per 3 m².



- [Tubo RDZ Tech PE-Xc Ø 14 Interior Layer](#)

Tubo RDZ Tech Ø 14 in polietilene ad alta densità reticolato per via elettrofisica, con barriera antiossigeno interposta tra la tubazione in PE-Xc e uno strato esterno in PE che garantisce la protezione durante le fasi di lavorazione in cantiere. Gli strati sono incollati tra loro da uno speciale collante. Prodotto in conformità alle normative UNI EN ISO 15875 e DIN 4726, garanzia di reticolazione omogenea e permanentemente stabile senza rischio di discontinuità per il mantenimento delle caratteristiche nel tempo.

- [Curva aperta](#)

Curva aperta Ø14 in materiale plastico, con funzione di sostenere verticalmente i tubi in prossimità dei collettori e proteggerli da eventuali urti.

- [Colla per pannello Dry-Tech](#)

Adesivo a base di resine speciali indurenti utilizzato per l'incollaggio del pannello Dry-Tech al pavimento per evitare che durante la fase di posa il pannello venga sollevato dalla tubazione.

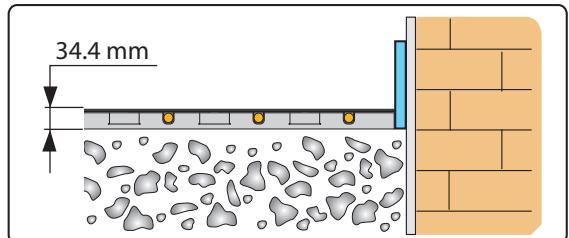
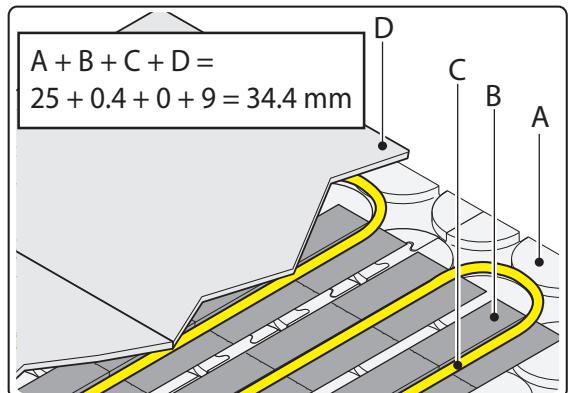
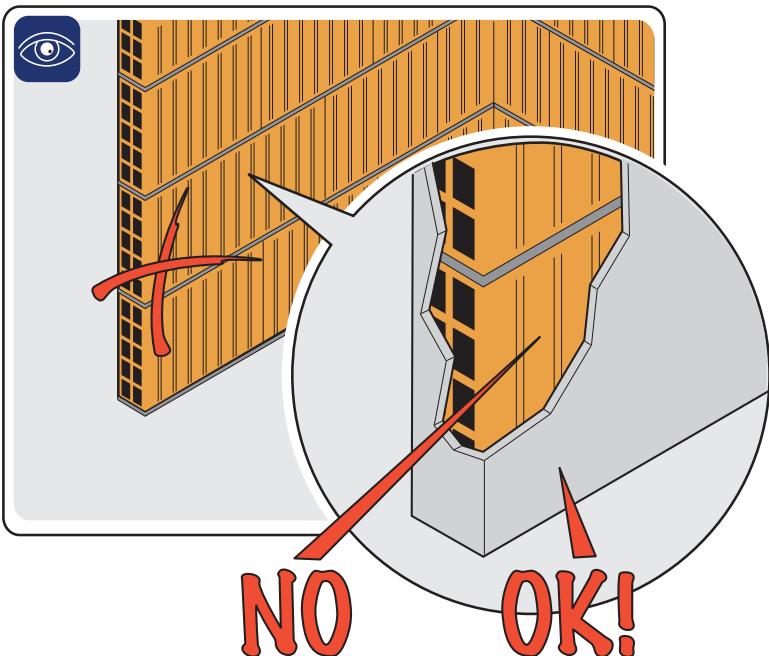
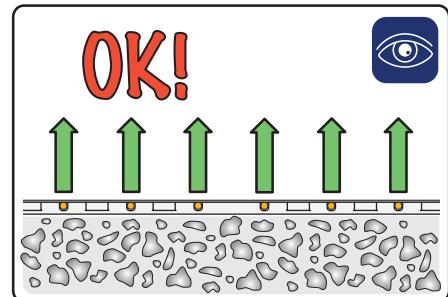
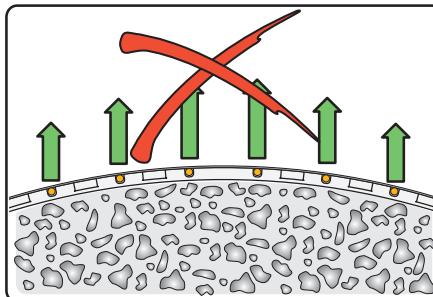
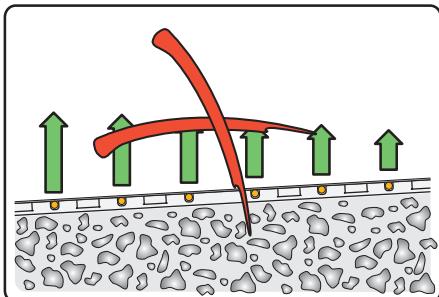
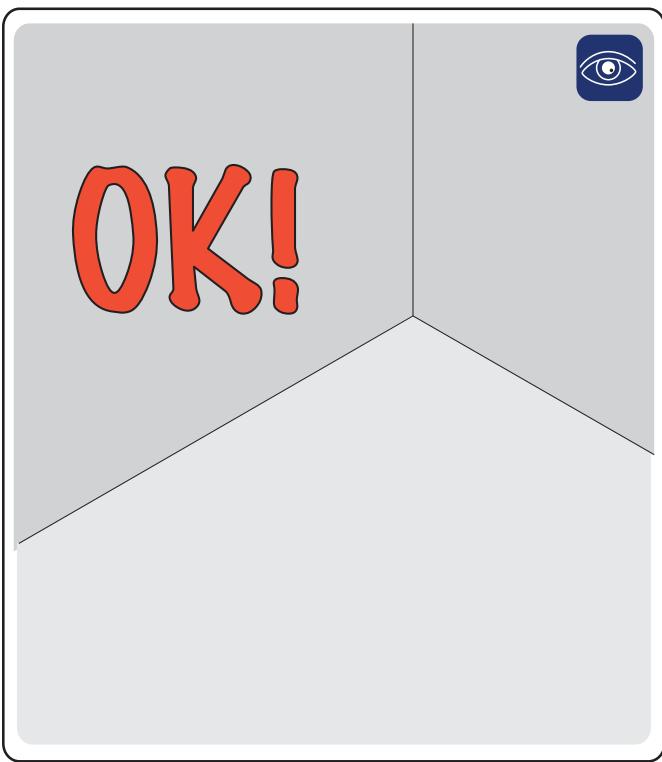
Dosaggio: un flacone ogni 3 m².

3 | INSTALLATION - INSTALLAZIONE

3.1 | PREPARATION OF THE LAYING BASE - PREPARAZIONE DEL PIANO DI POSA

Before starting laying activities in the building site it is necessary to follow the instructions shown in the pictures below:

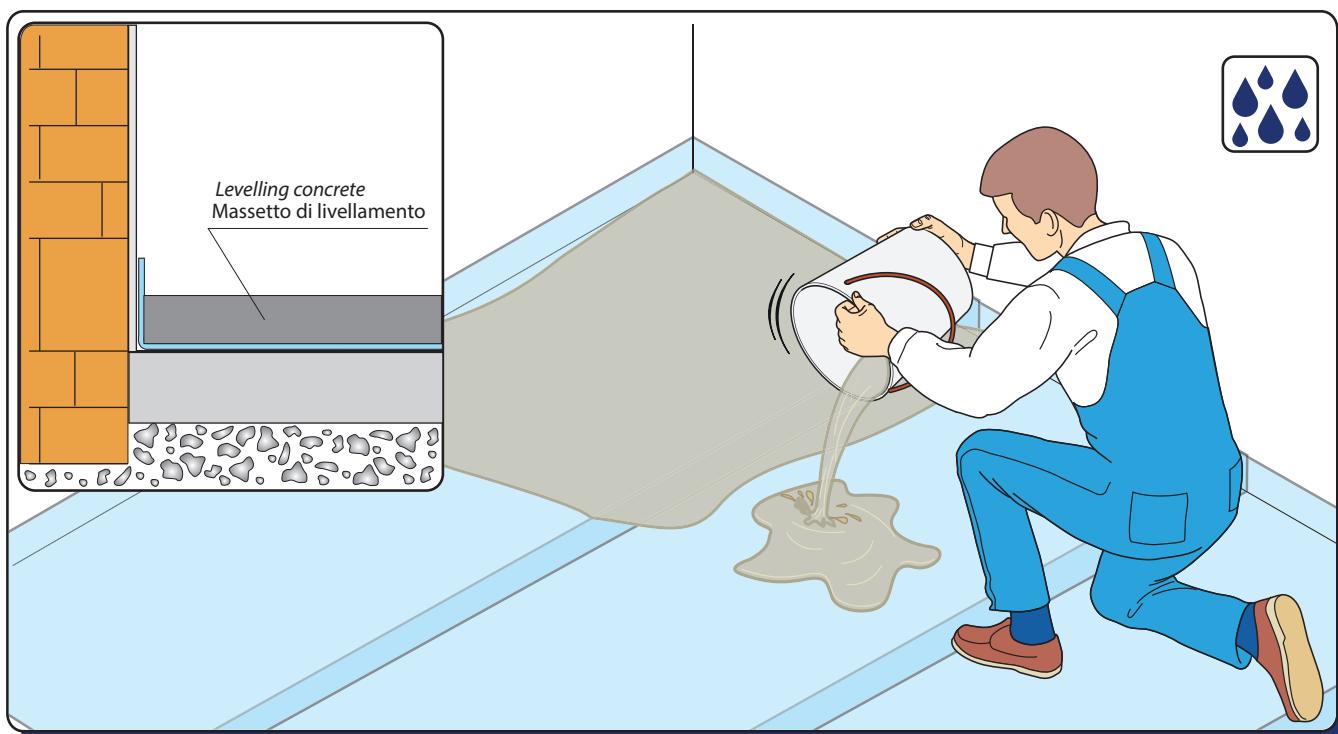
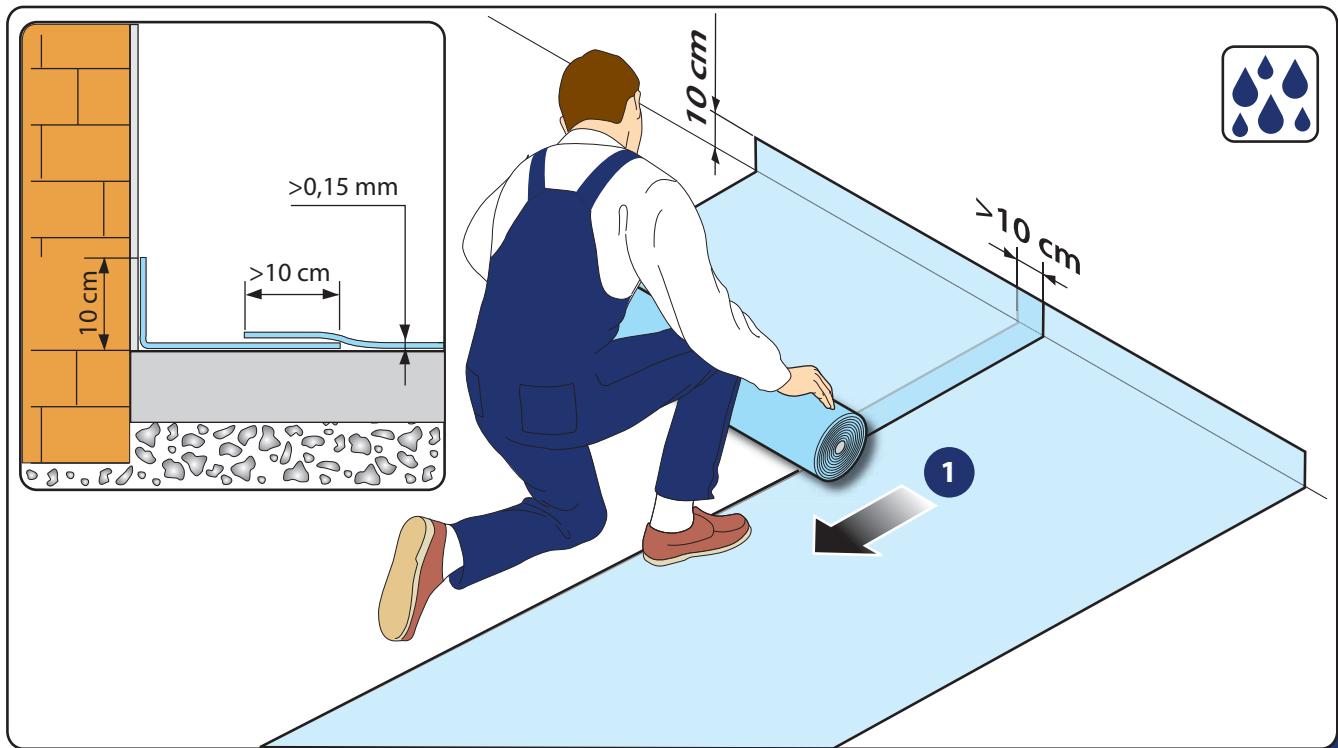
Prima di cominciare le operazioni di posa in cantiere è necessario seguire una serie di accorgimenti illustrati nelle figure sottostanti.



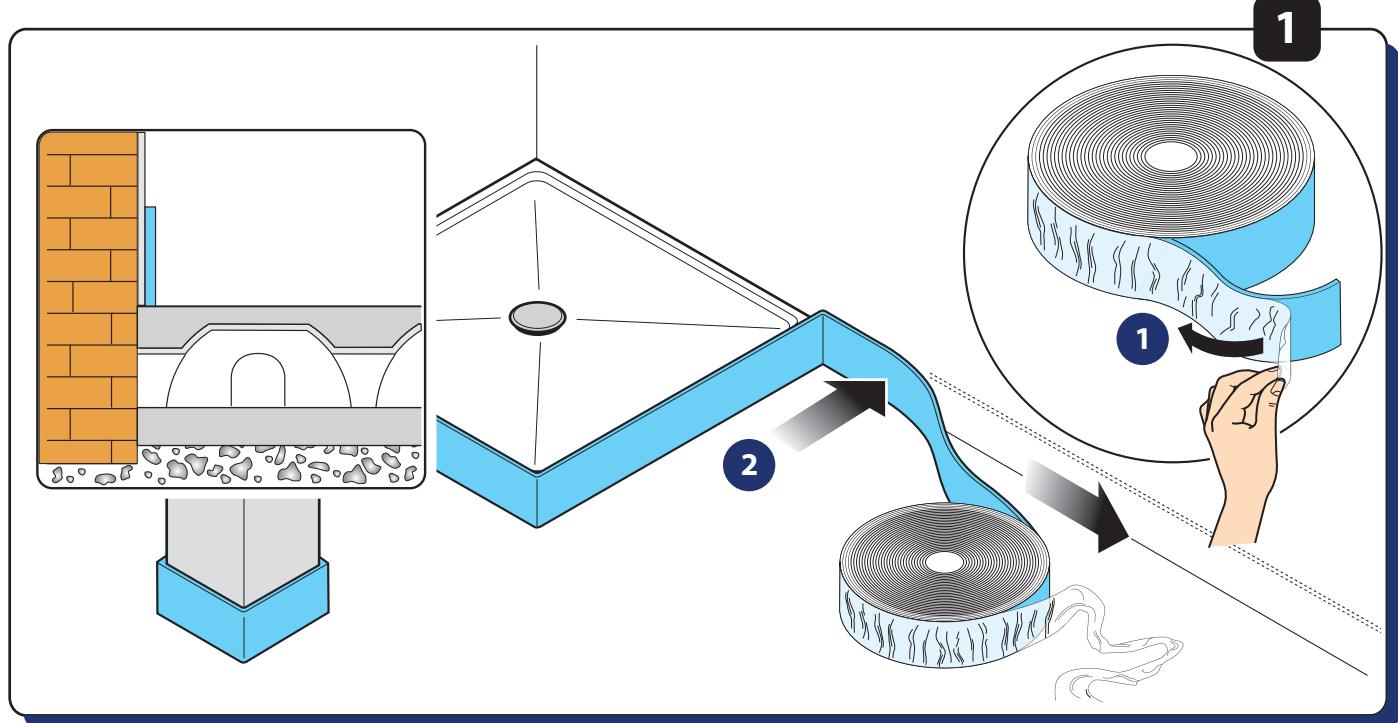
3.2 | INSTALLATION OF HUMIDITY BARRIER (OPTIONAL) POSA BARRIERA ALL'UMIDITÀ (OPZIONALE)

If the floor lies **directly on the ground** (without void space or insulating sheath), it is important to install a waterproof layer made of polyethylene sheets functioning as humidity barrier, minimum thickness 0.15 mm (or a similar system), to place under EVO-DRY system. You must use levelling concrete between the humidity barrier sheet and EVO-DRY system.

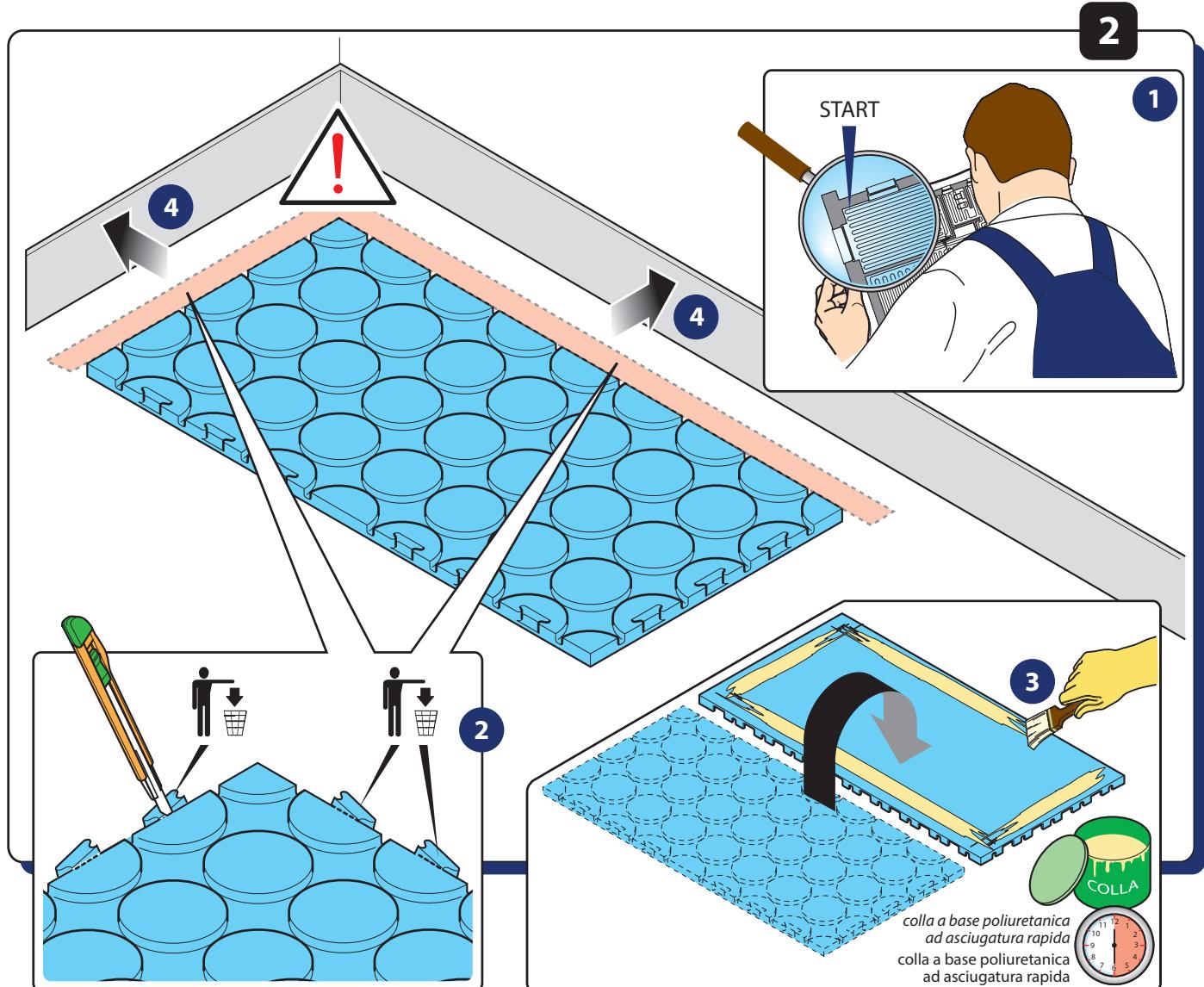
Se la pavimentazione si trova a **diretto contatto con il terreno** (quindi senza vuoto sanitario o guaina isolante), si procede alla posa di uno strato per l'impermeabilizzazione, costituito da un foglio in polietilene avente funzione di barriera all'umidità di spessore minimo 0,15 mm (oppure un sistema equivalente), da collocare sotto il sistema EVO-DRY. Tra il sistema EVO-DRY e la barriera umidità si rende obbligatoria la posa di un massetto di livellamento.

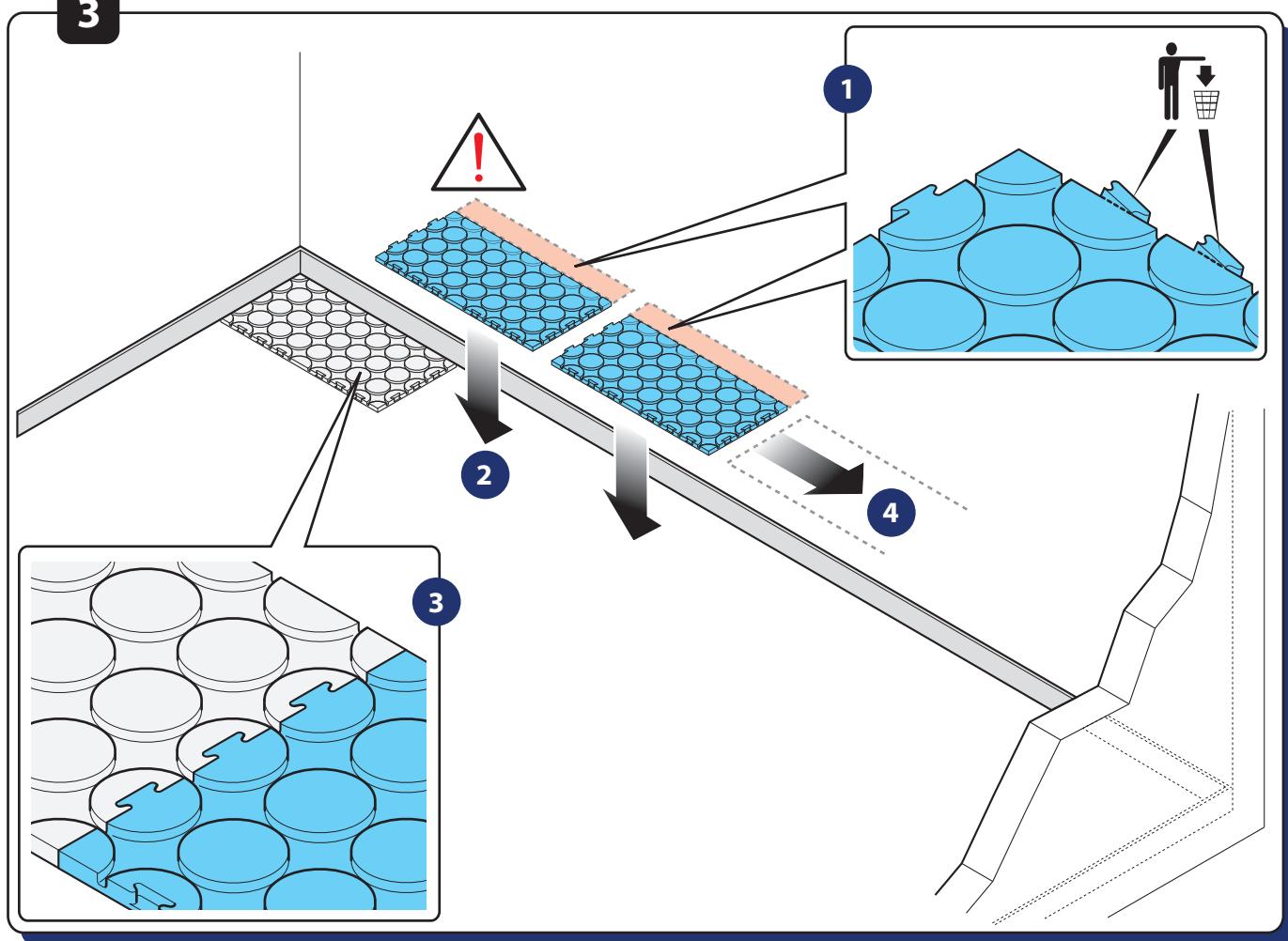
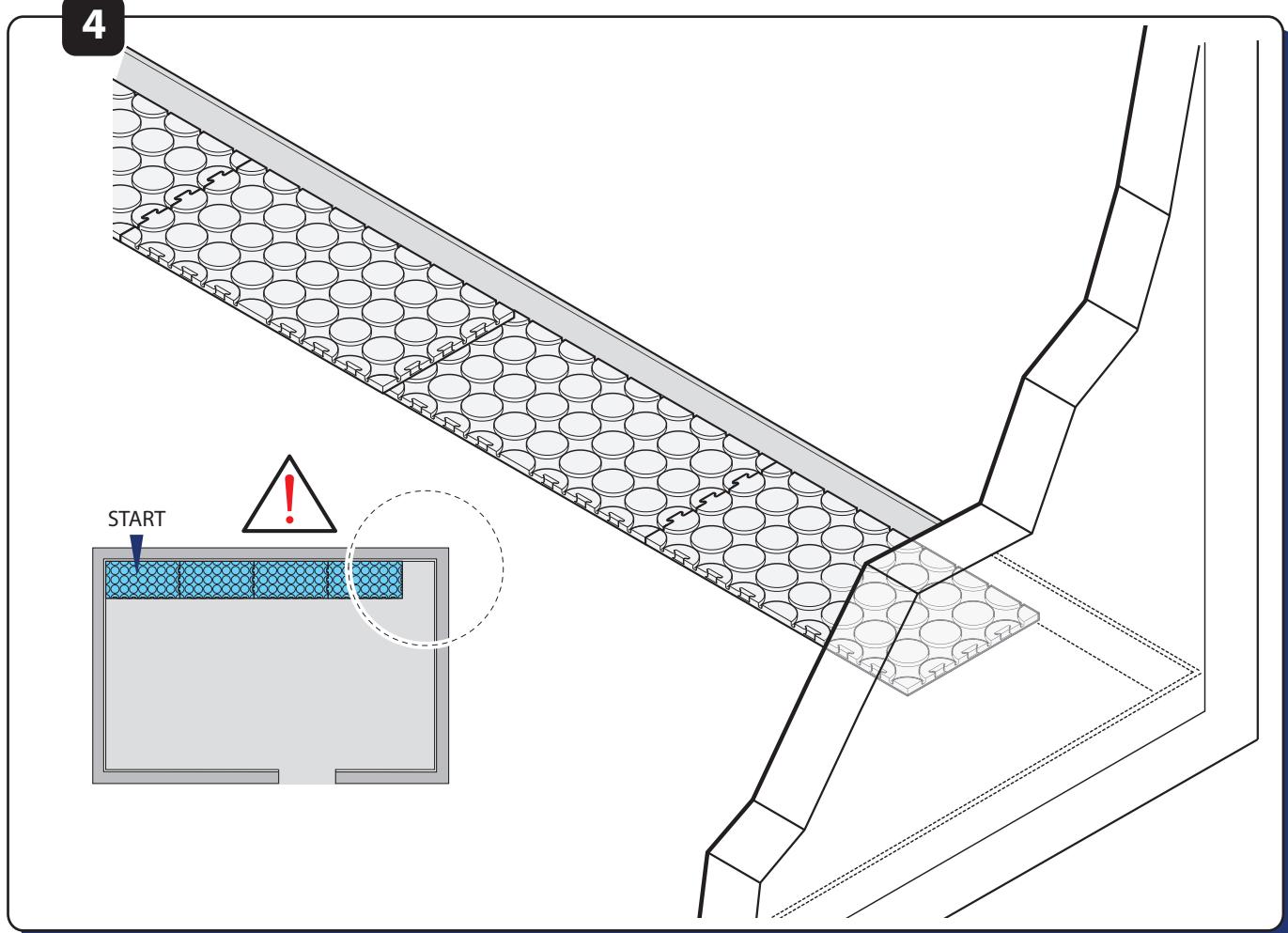


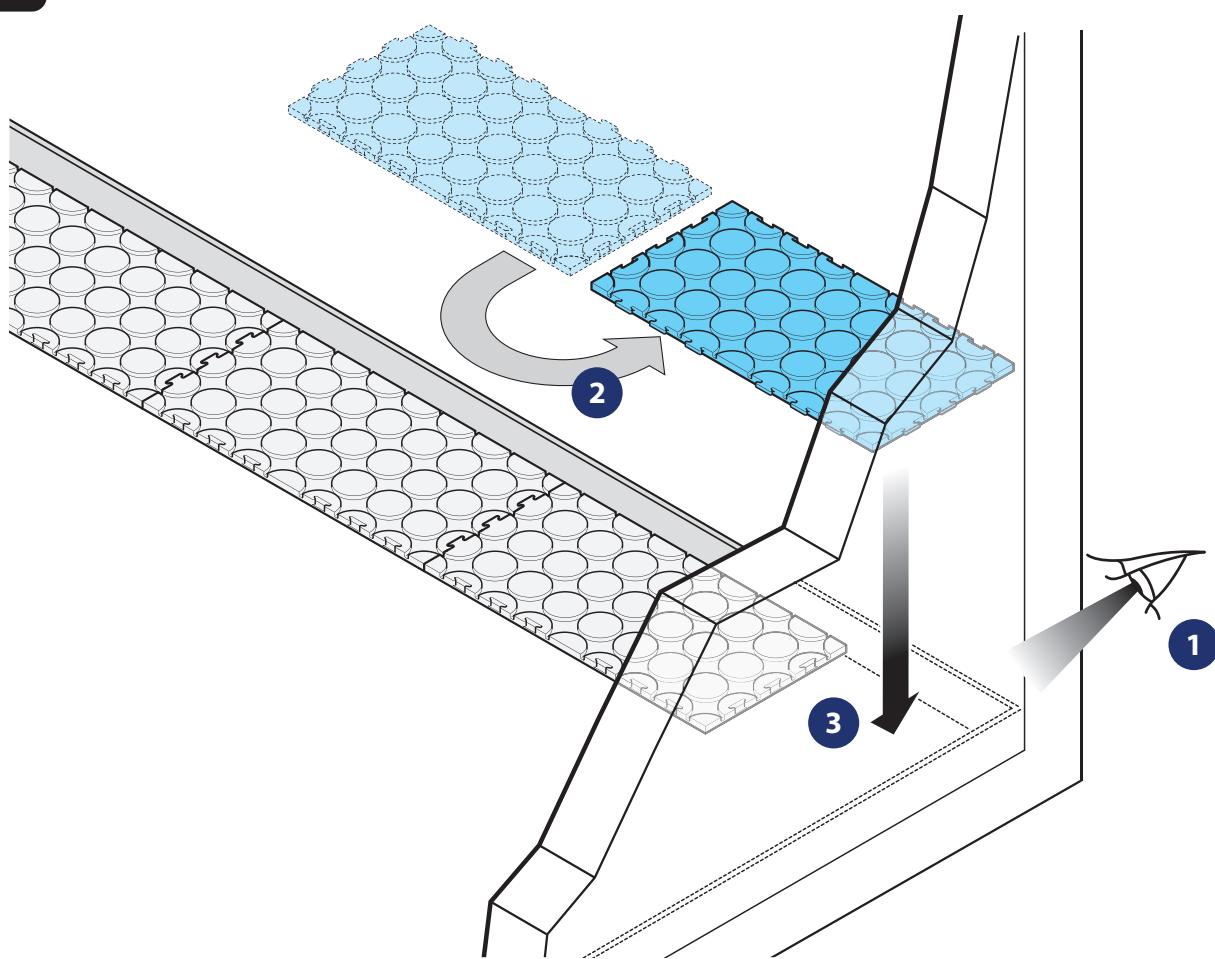
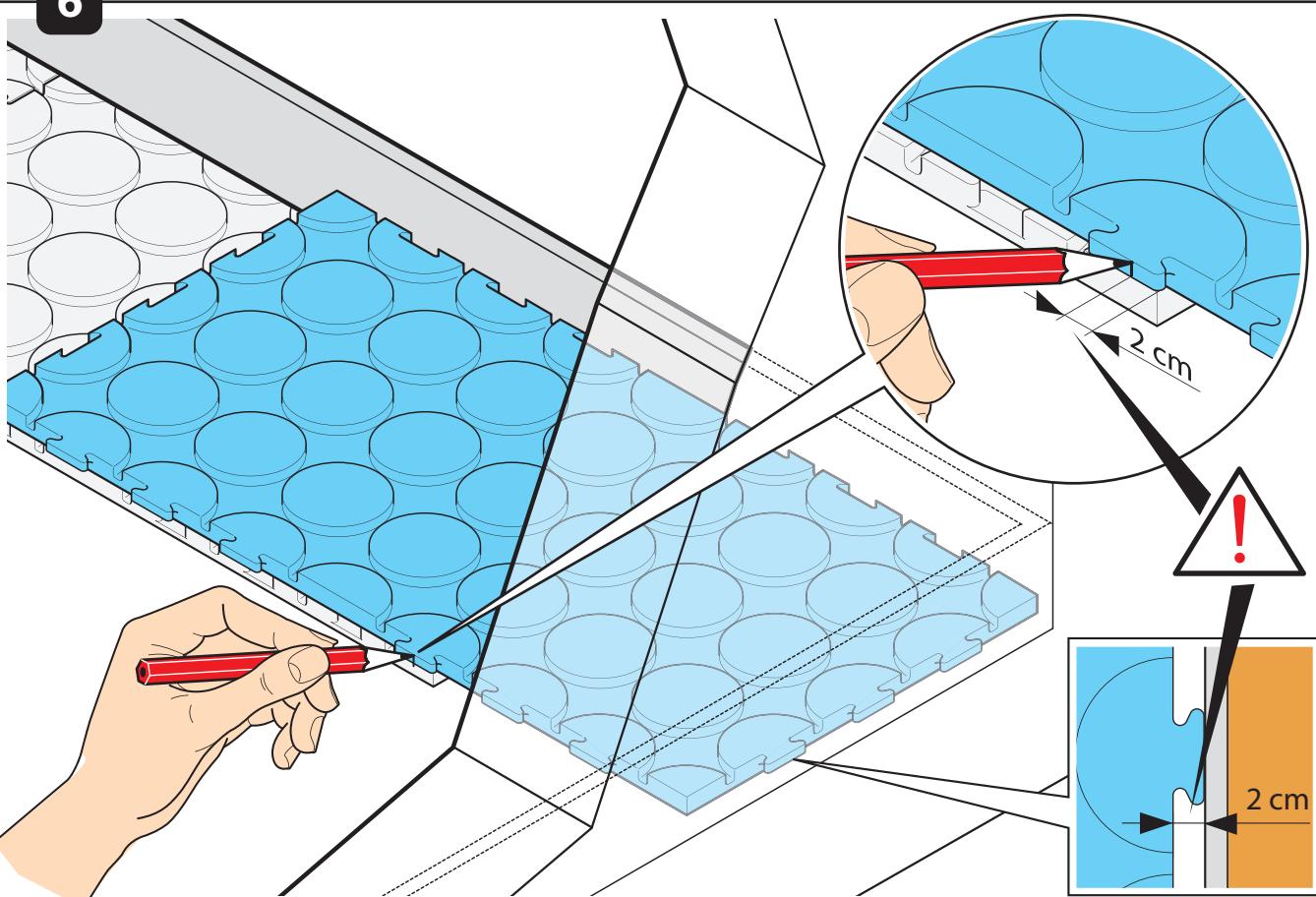
3.3 | INSTALLATION OF THE PERIMETREL BELT - POSA DELLA CORNICE PERIMETRALE

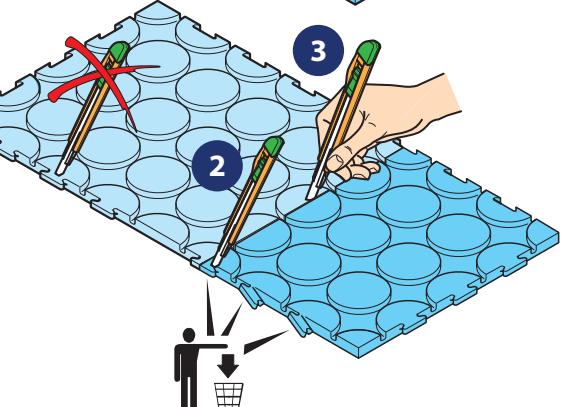
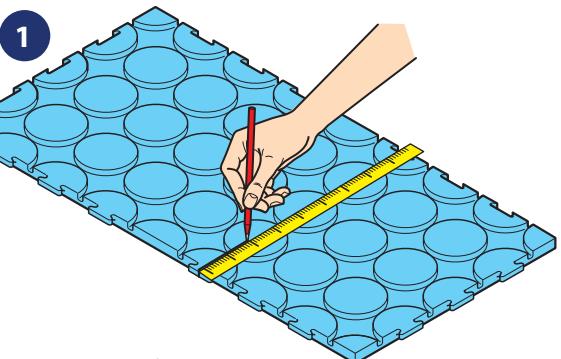
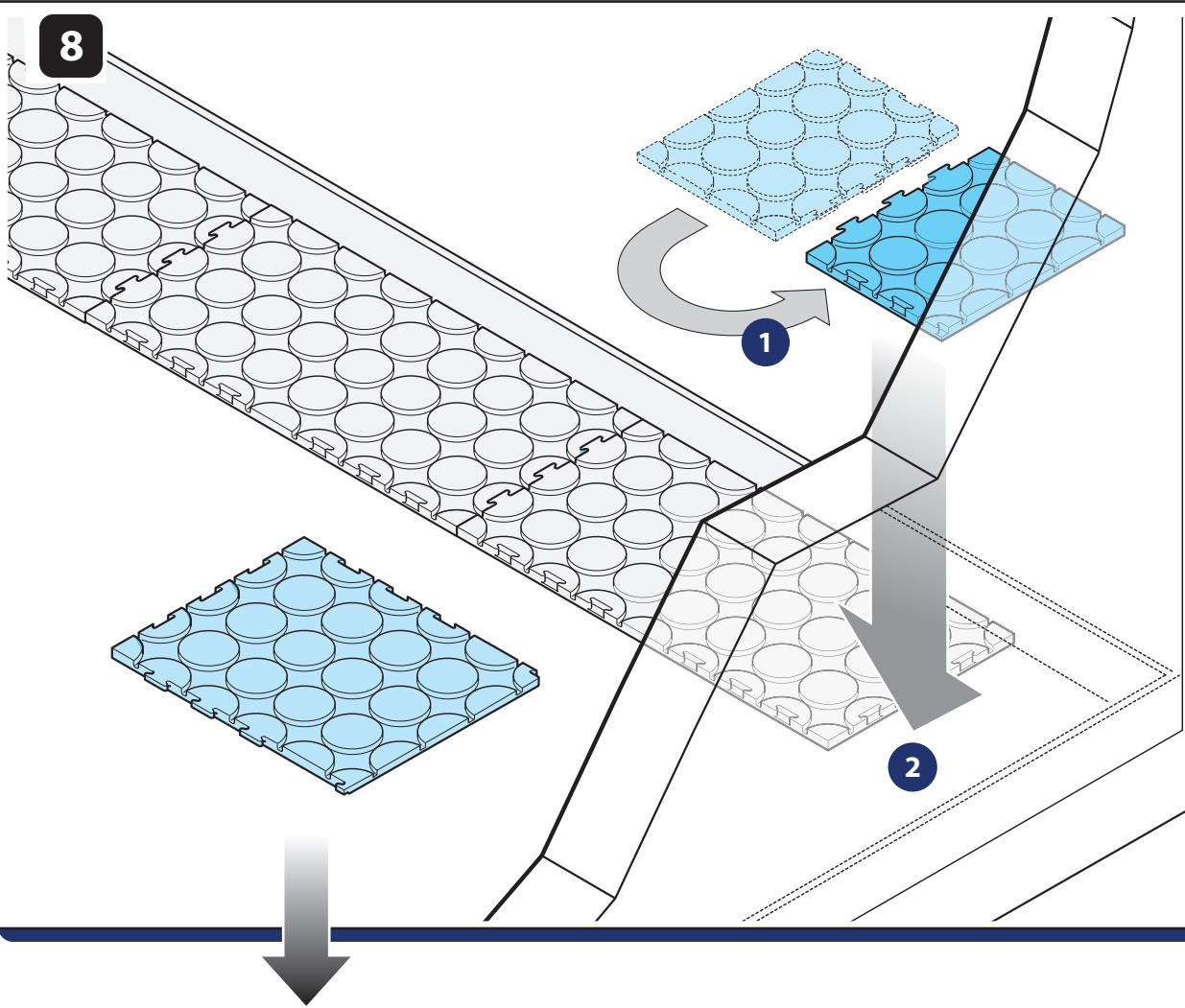


3.4 | INSTALLATION OF THE DRY-TECH PANEL - POSA DEL PANNELLO DRY-TECH



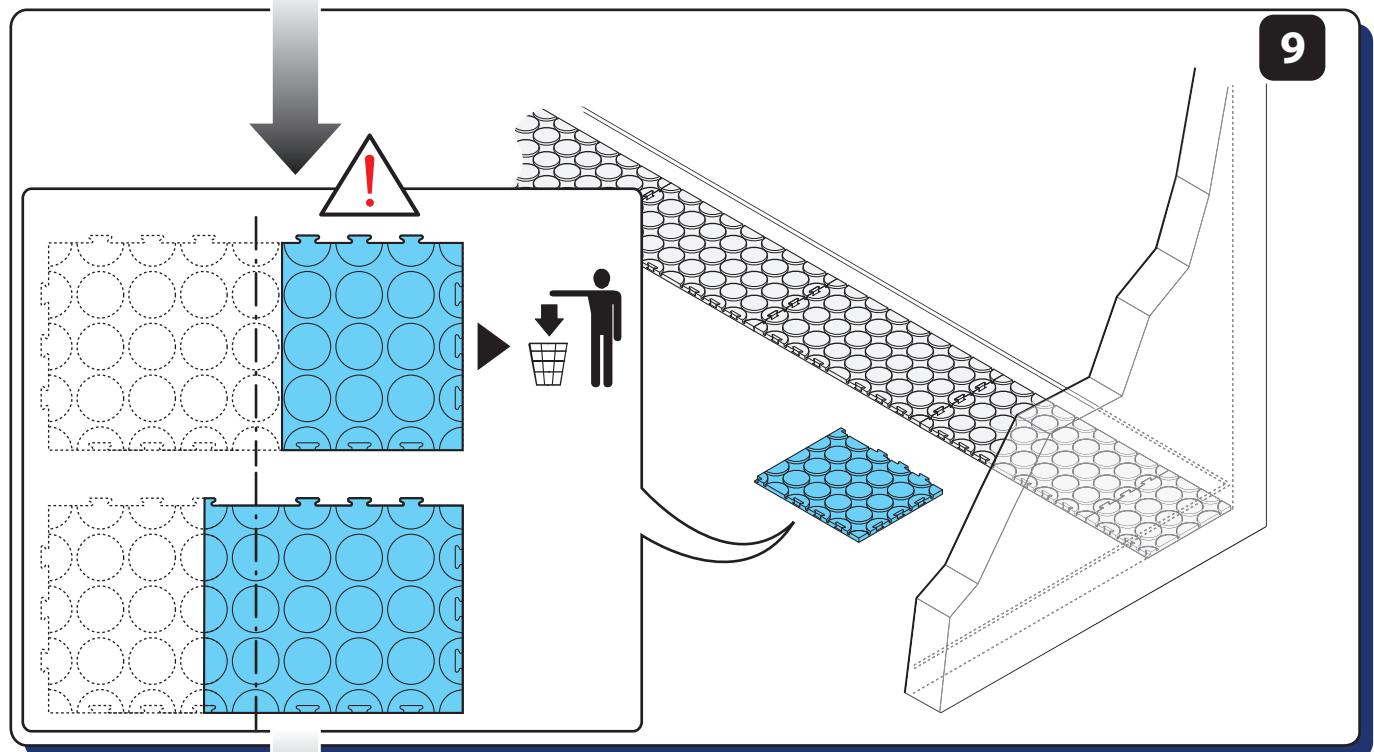
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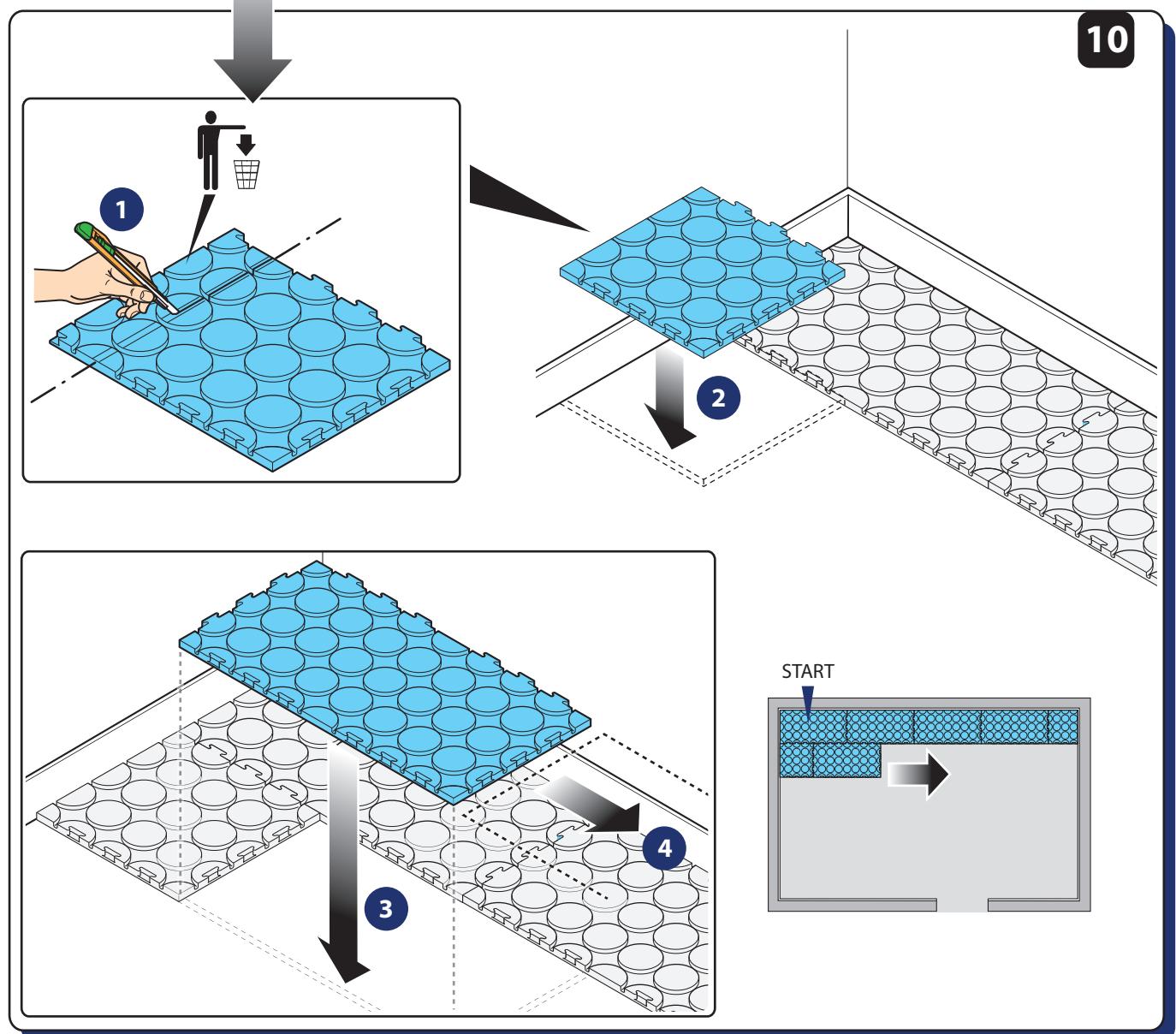
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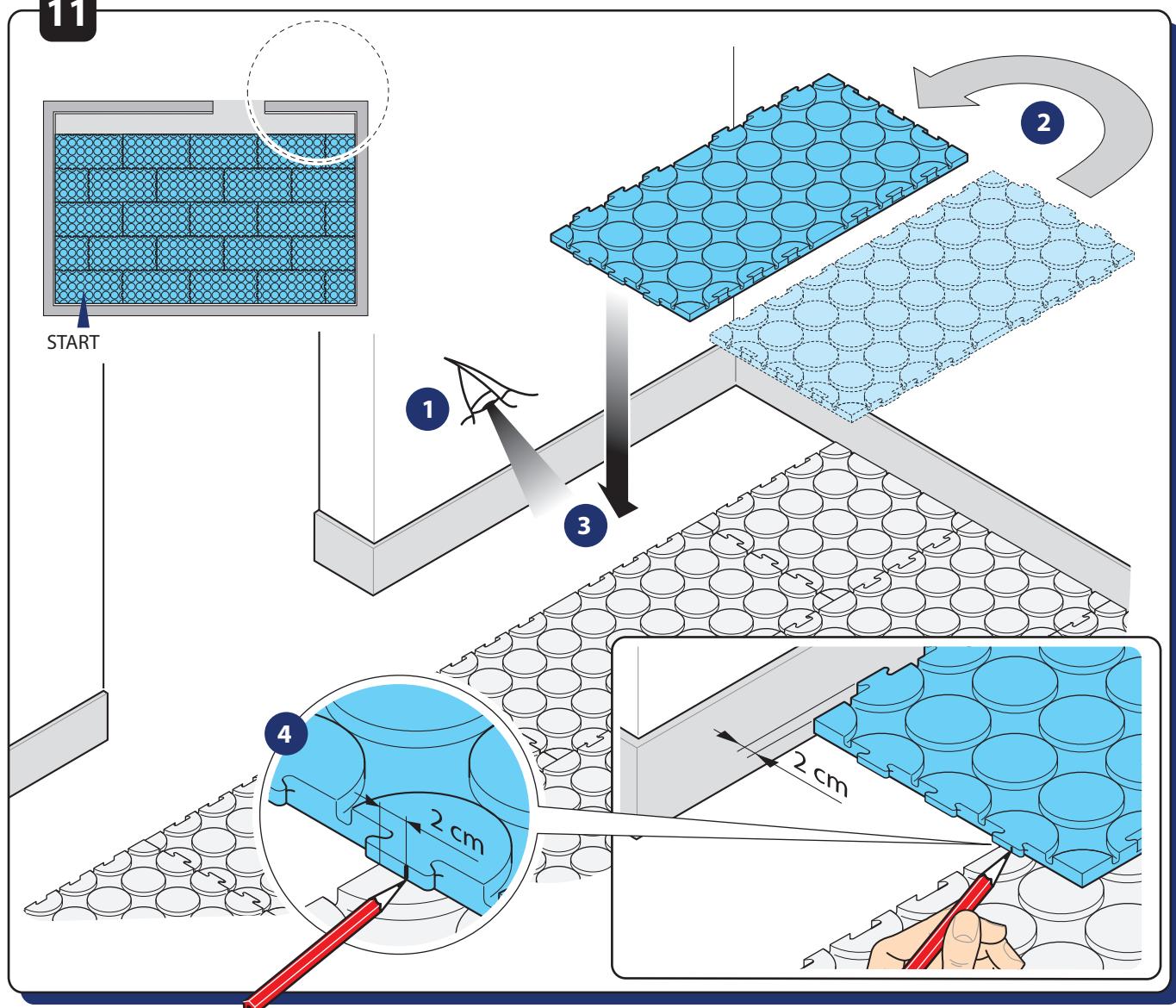
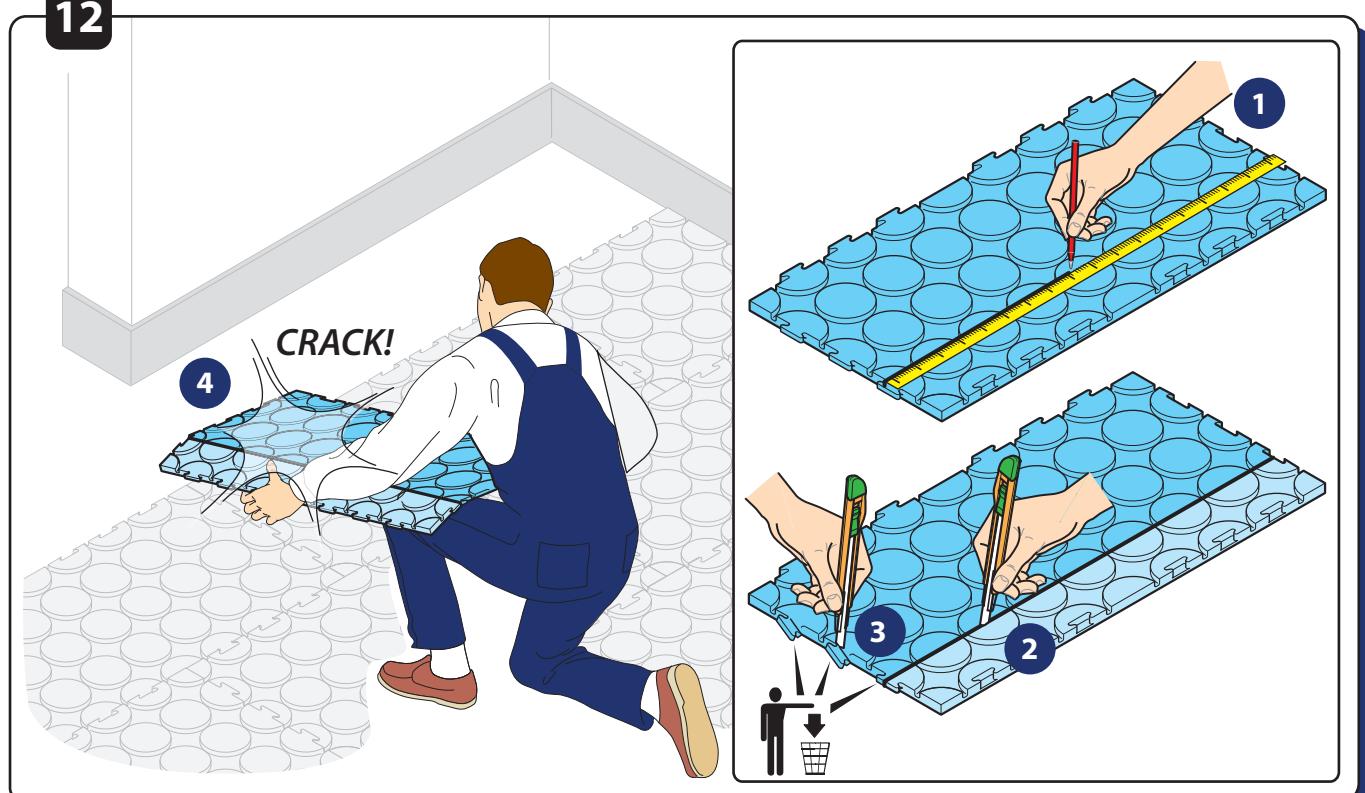


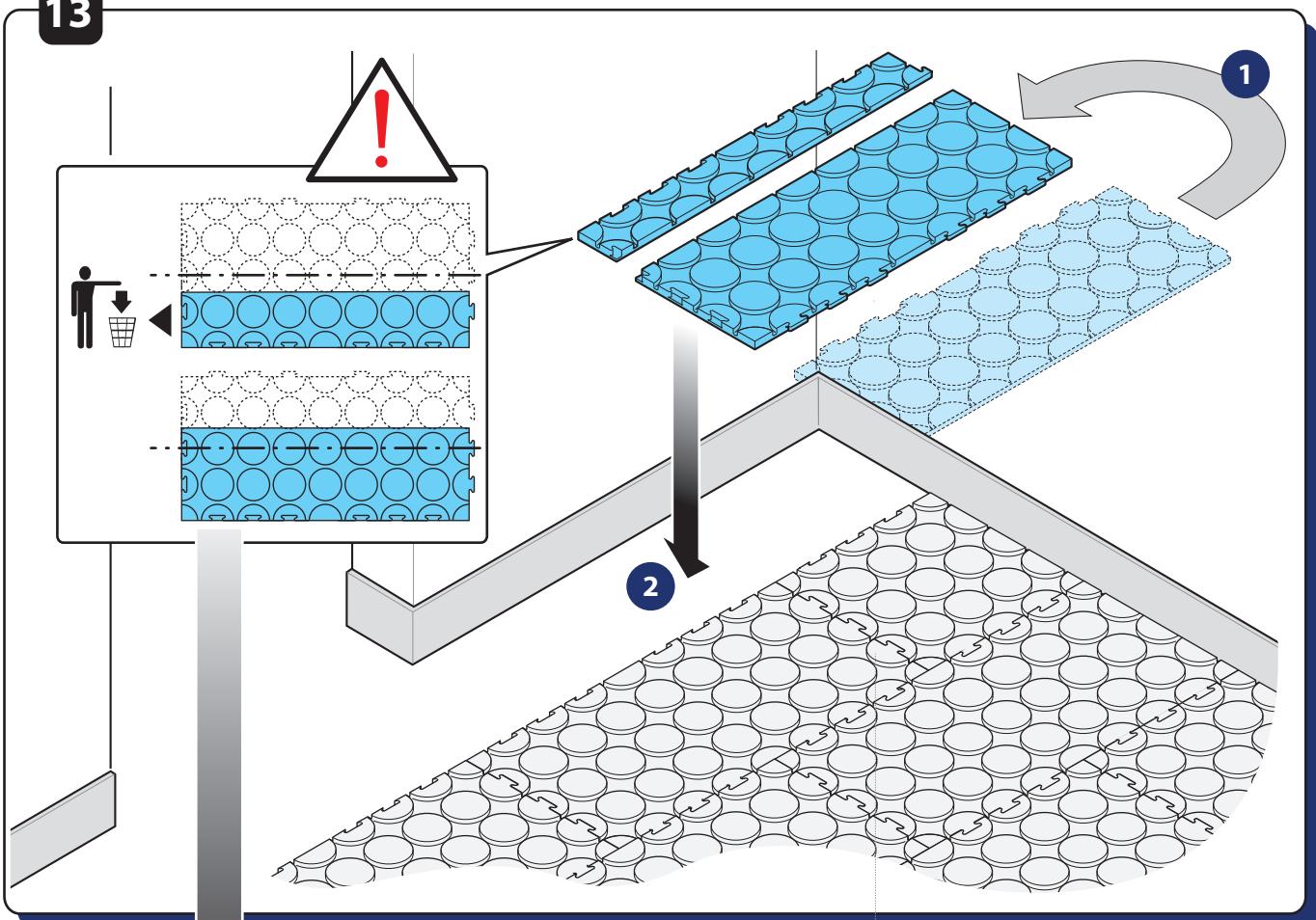
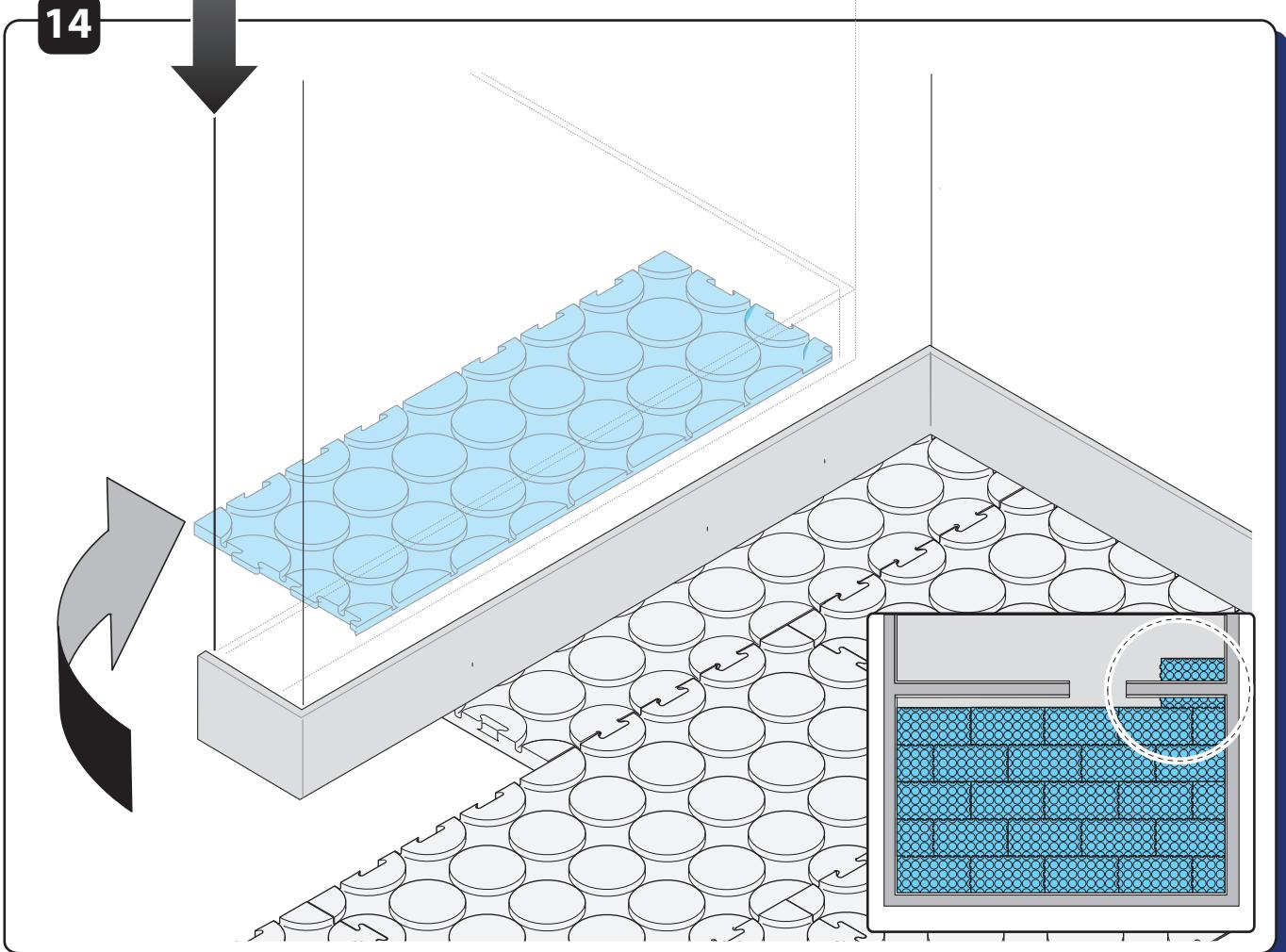
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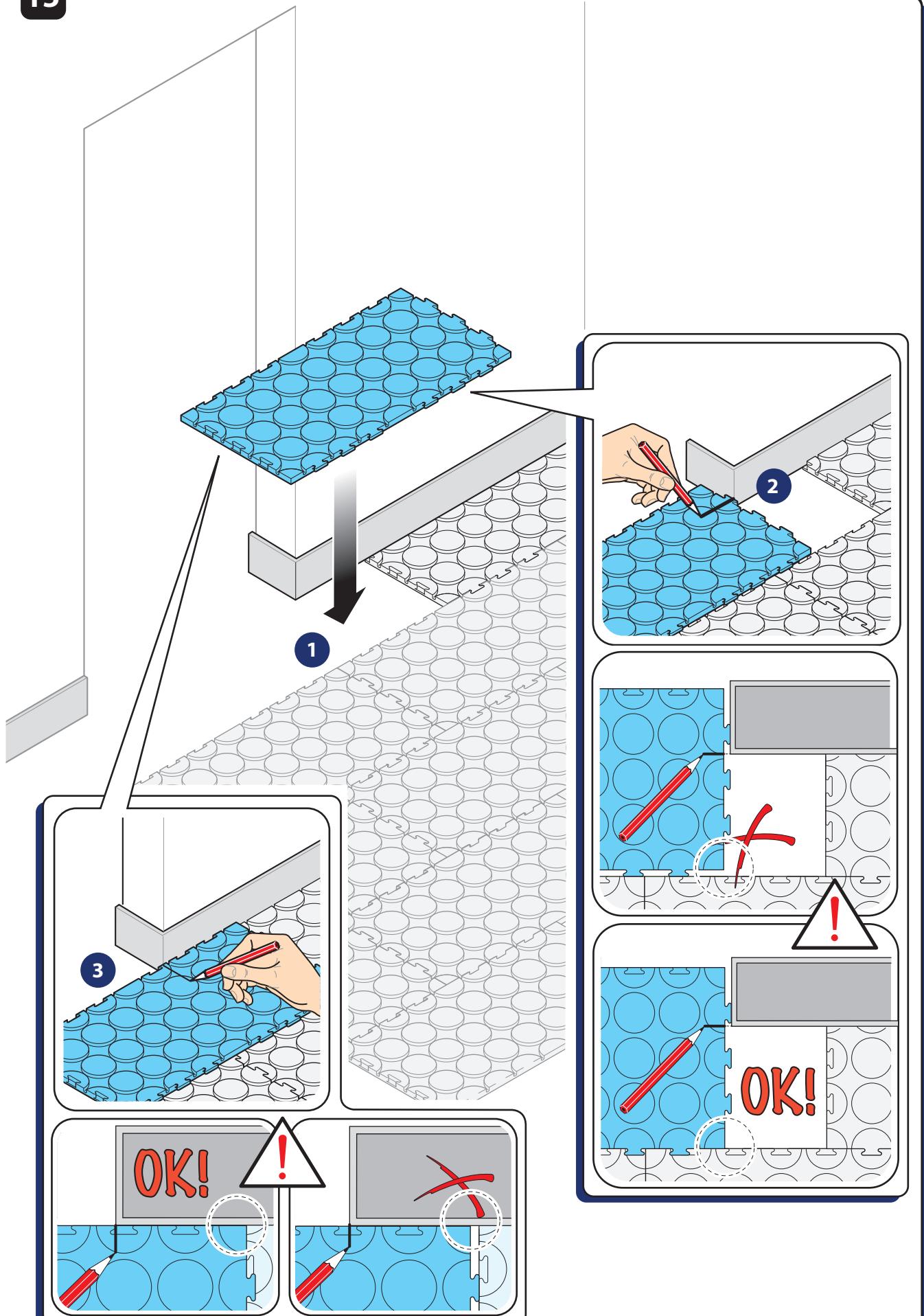
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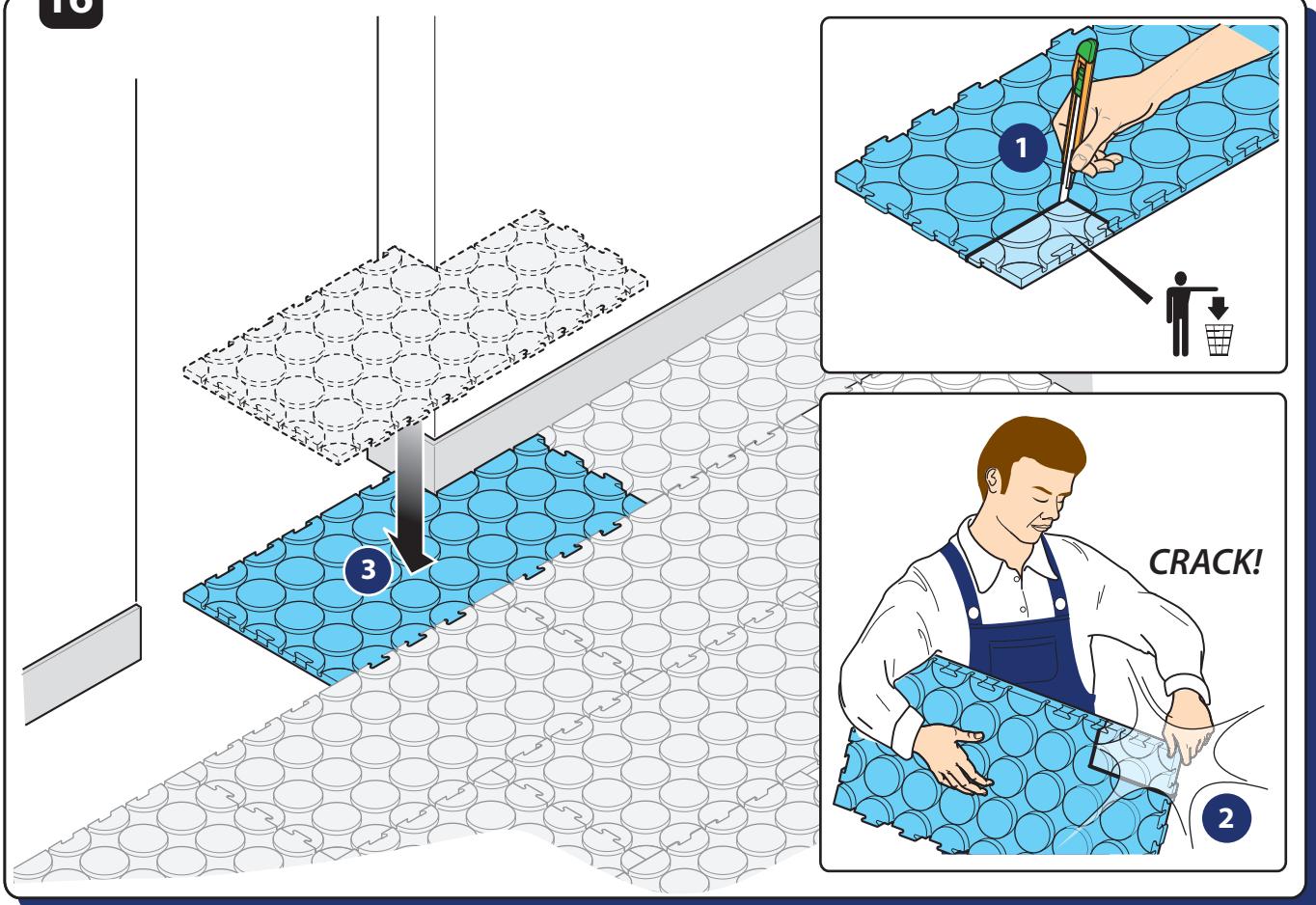
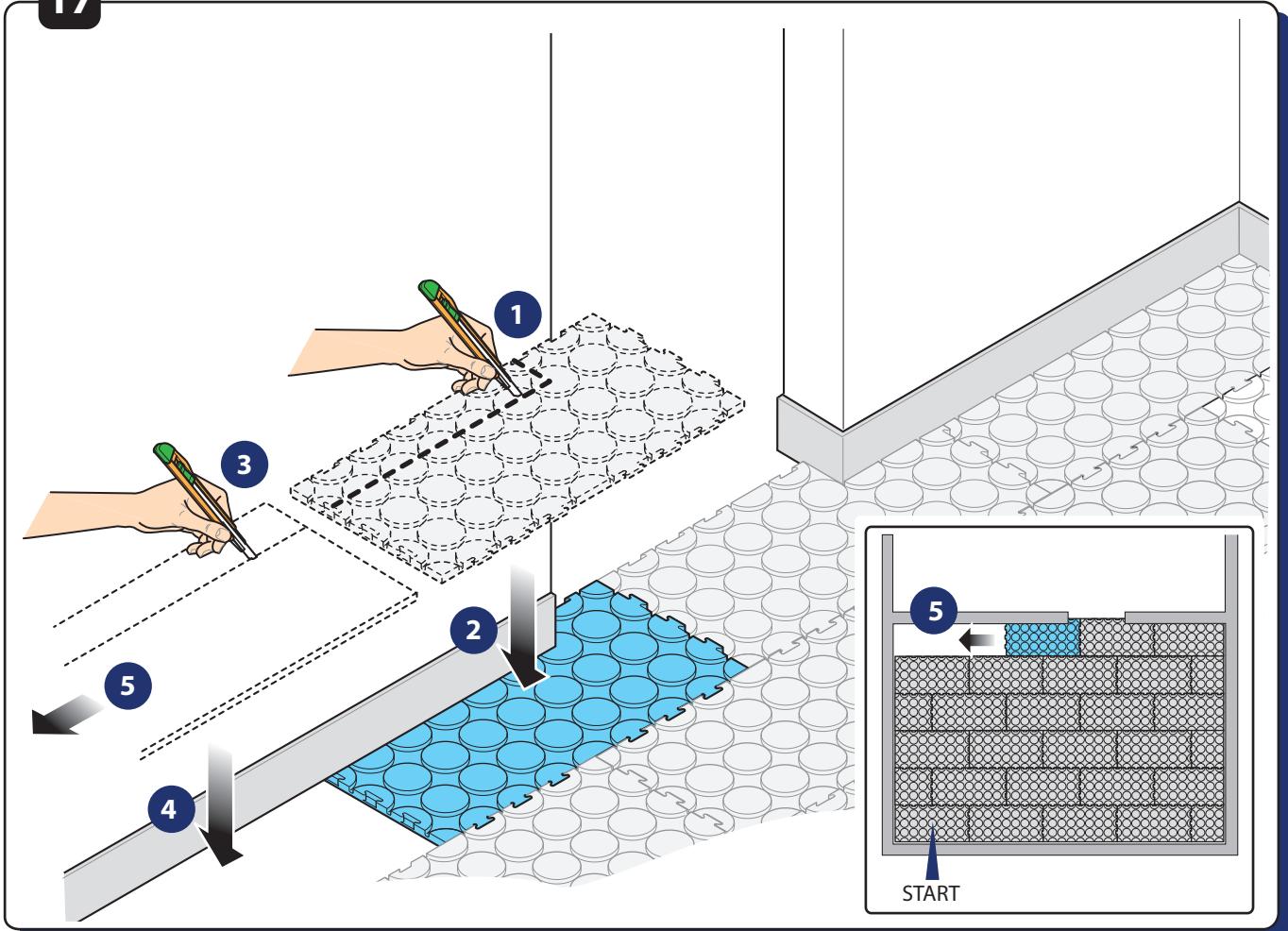


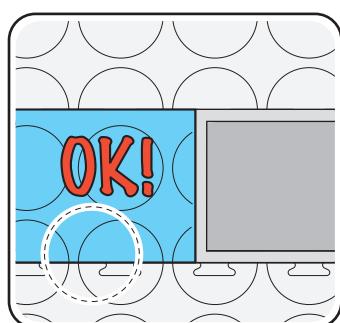
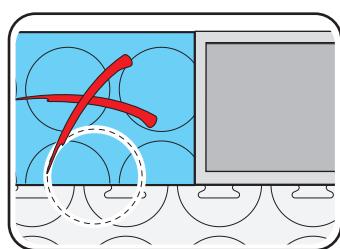
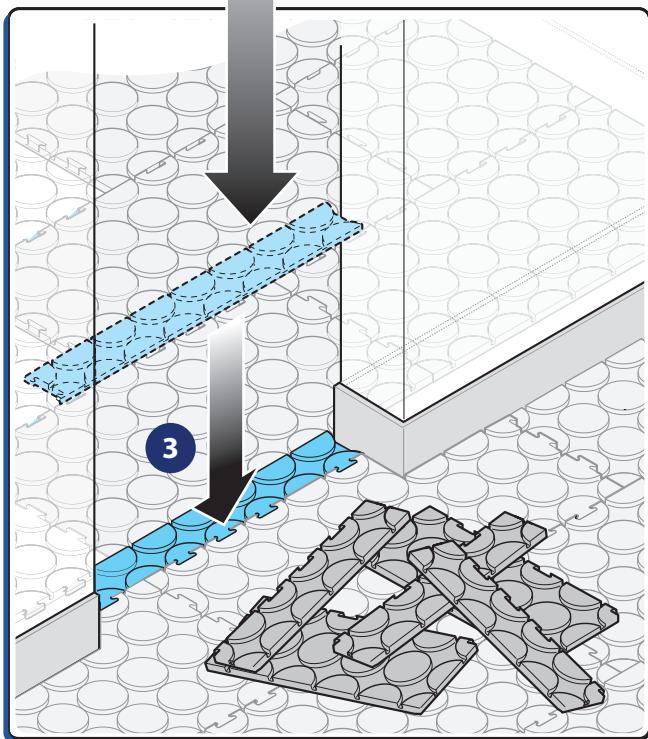
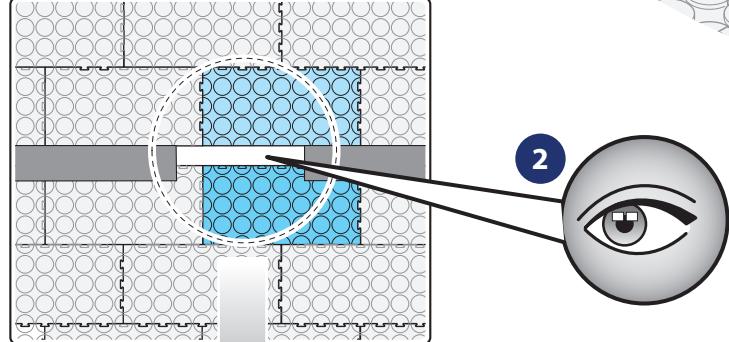
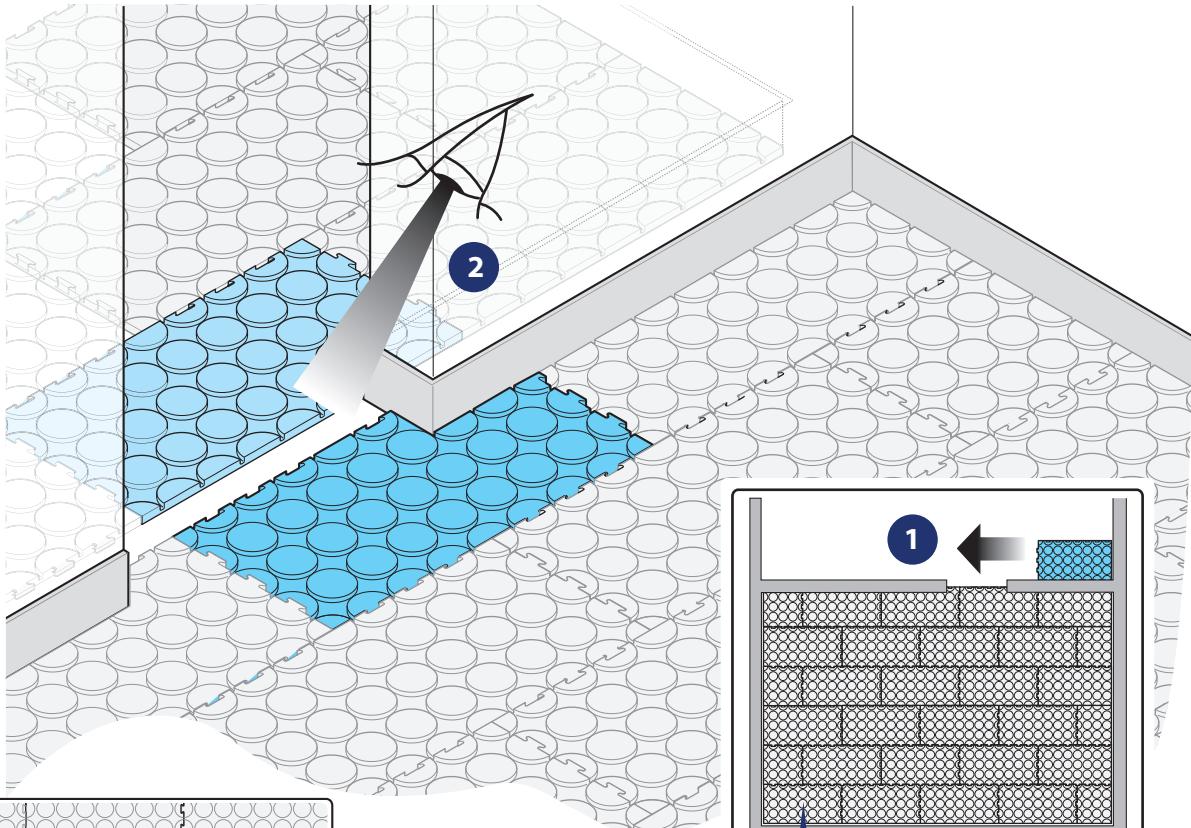
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13**14**

15

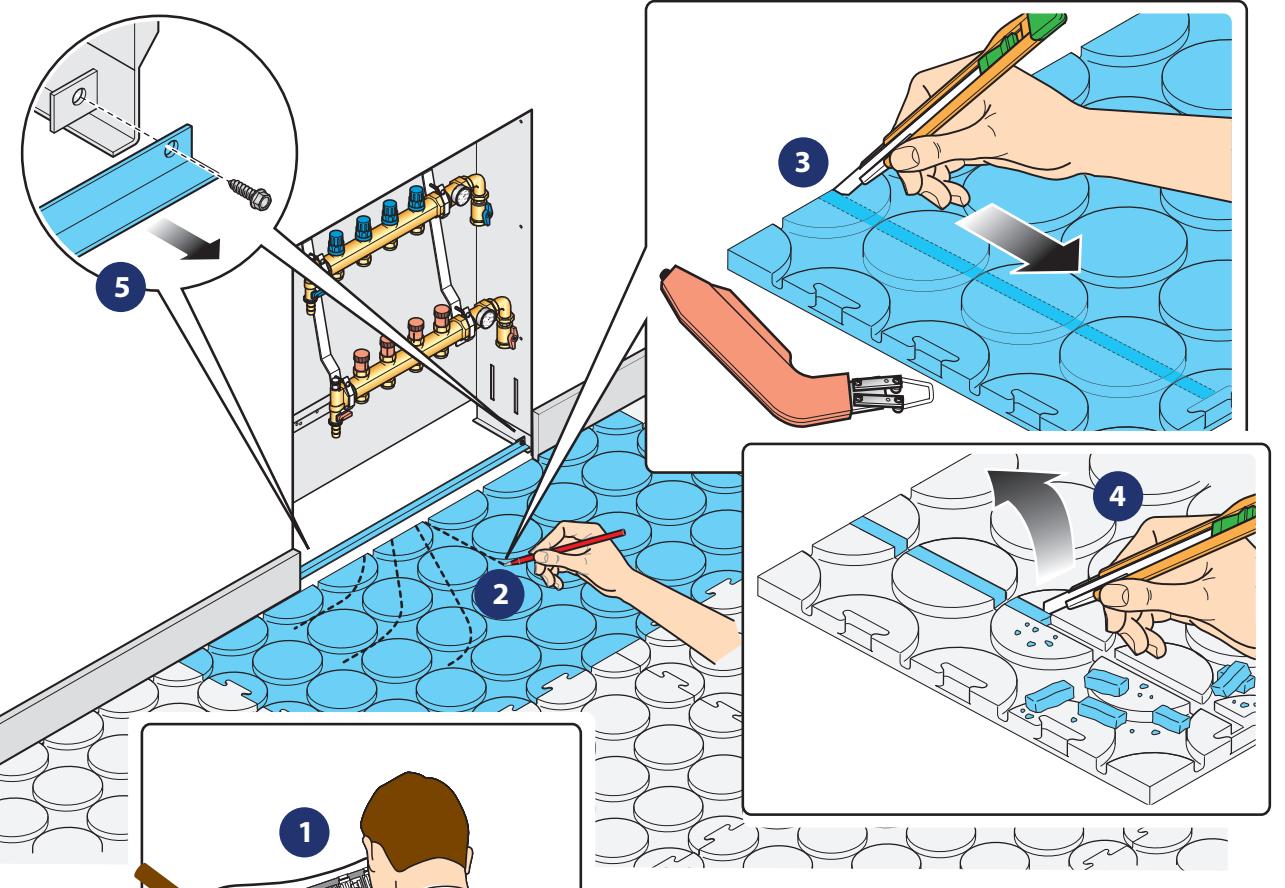


16**17**

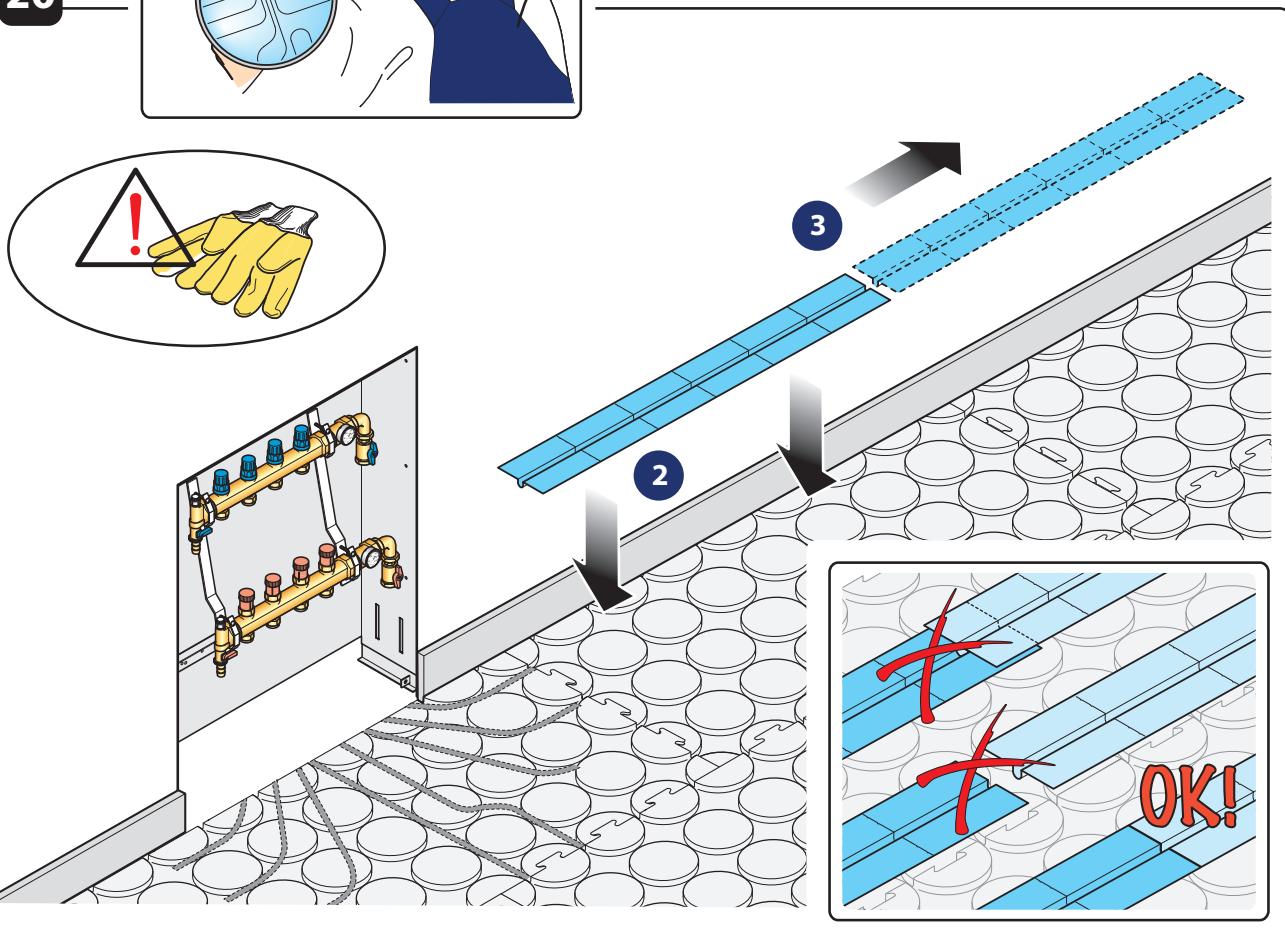
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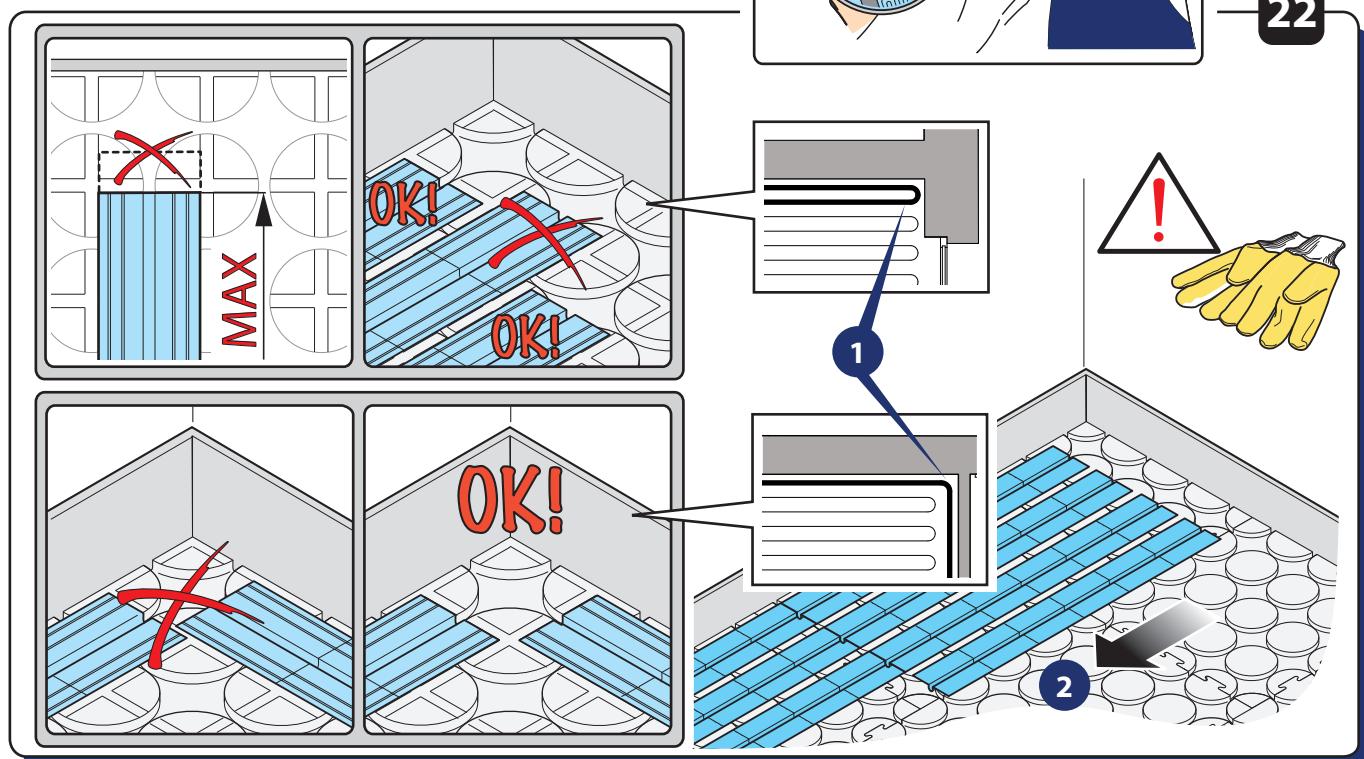
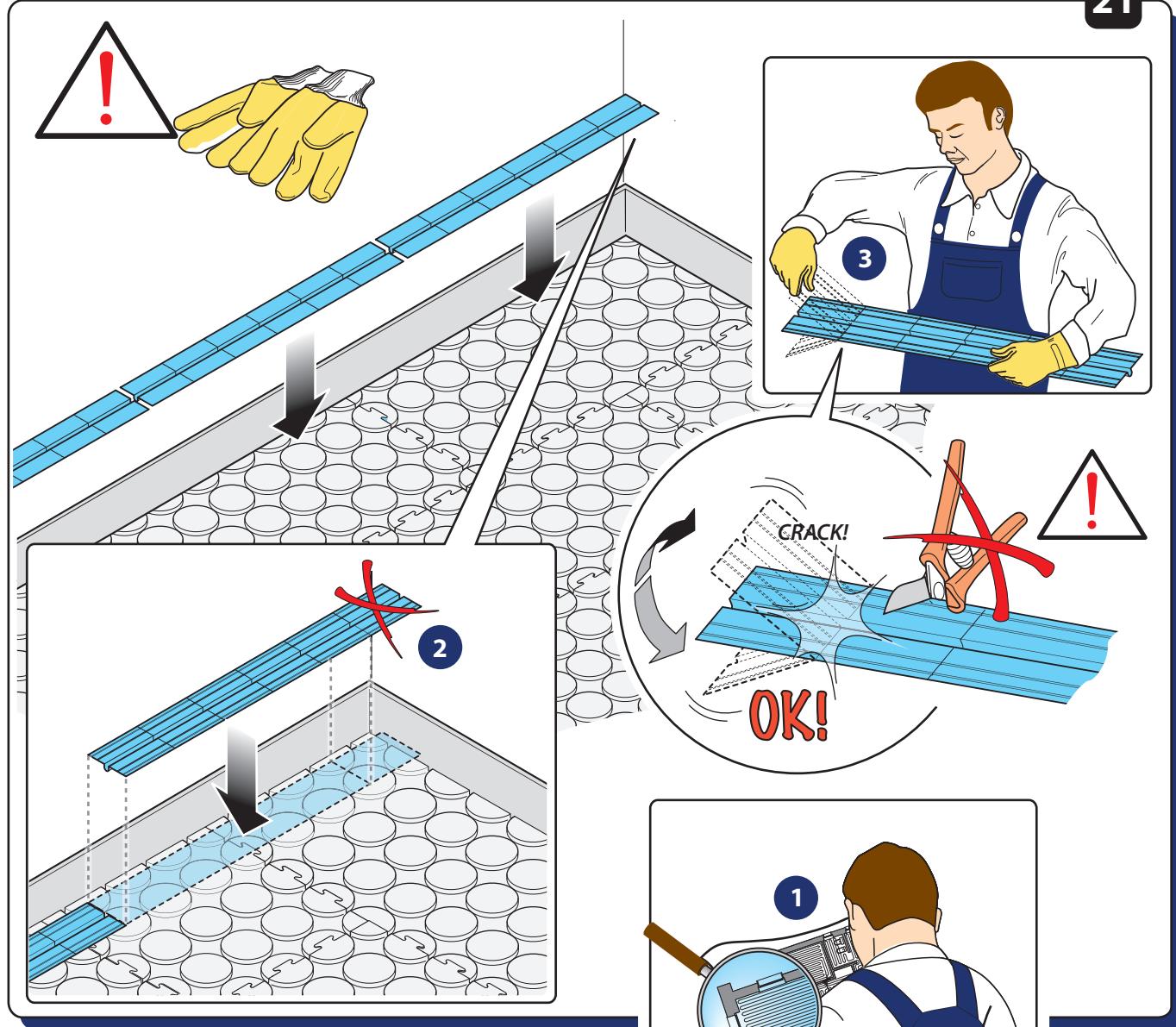
3.5 | INSTALLATION OF THE THERMAL DIFFUSERS - POSA DELLE LAMELLE TERMOCONDUTTRICI

19



20





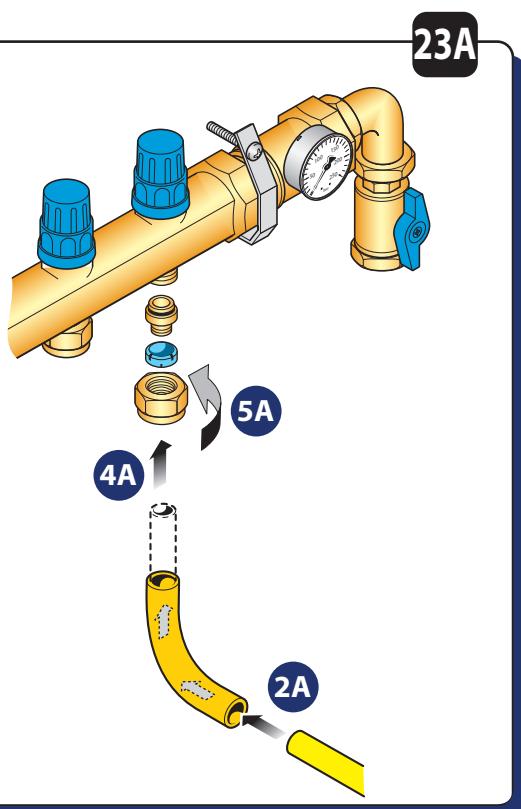
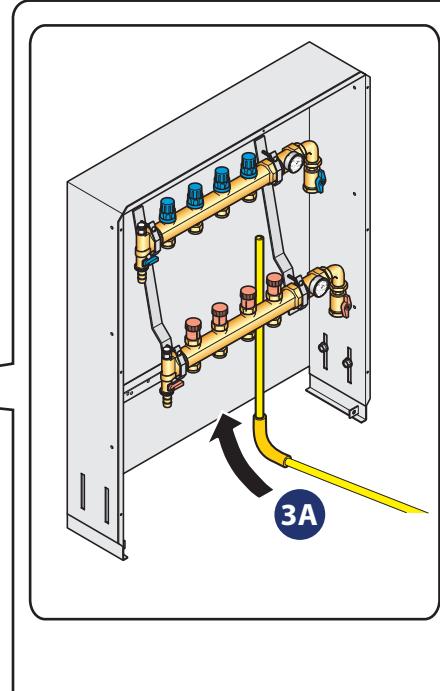


3.6 | INSTALLATION OF THE PIPE - POSA DEL TUBO

23A

CONTROL
TOP-CONTROL

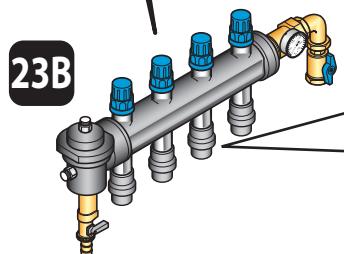
23A



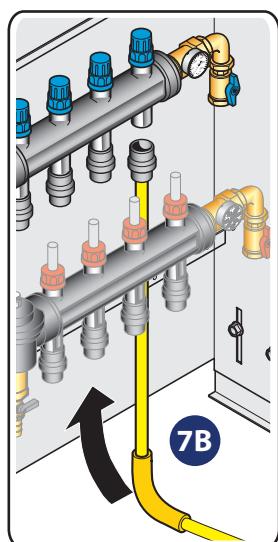
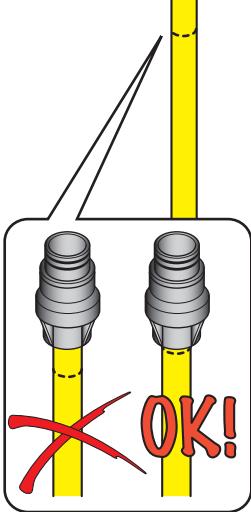
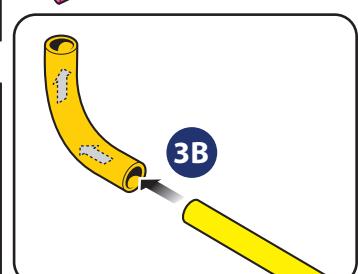
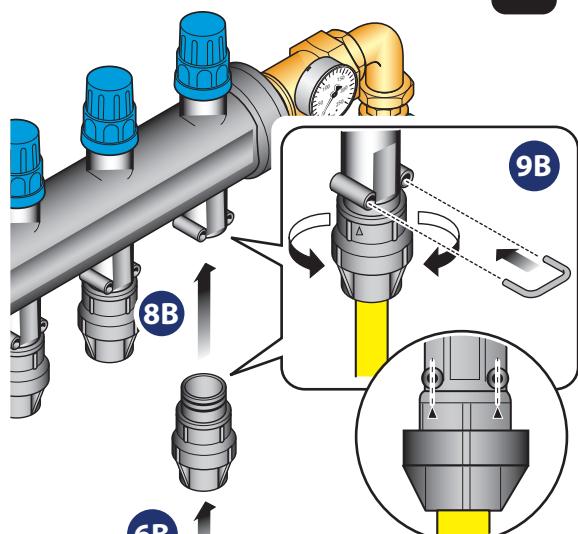
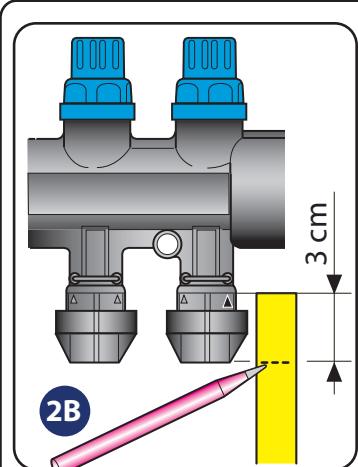
23B

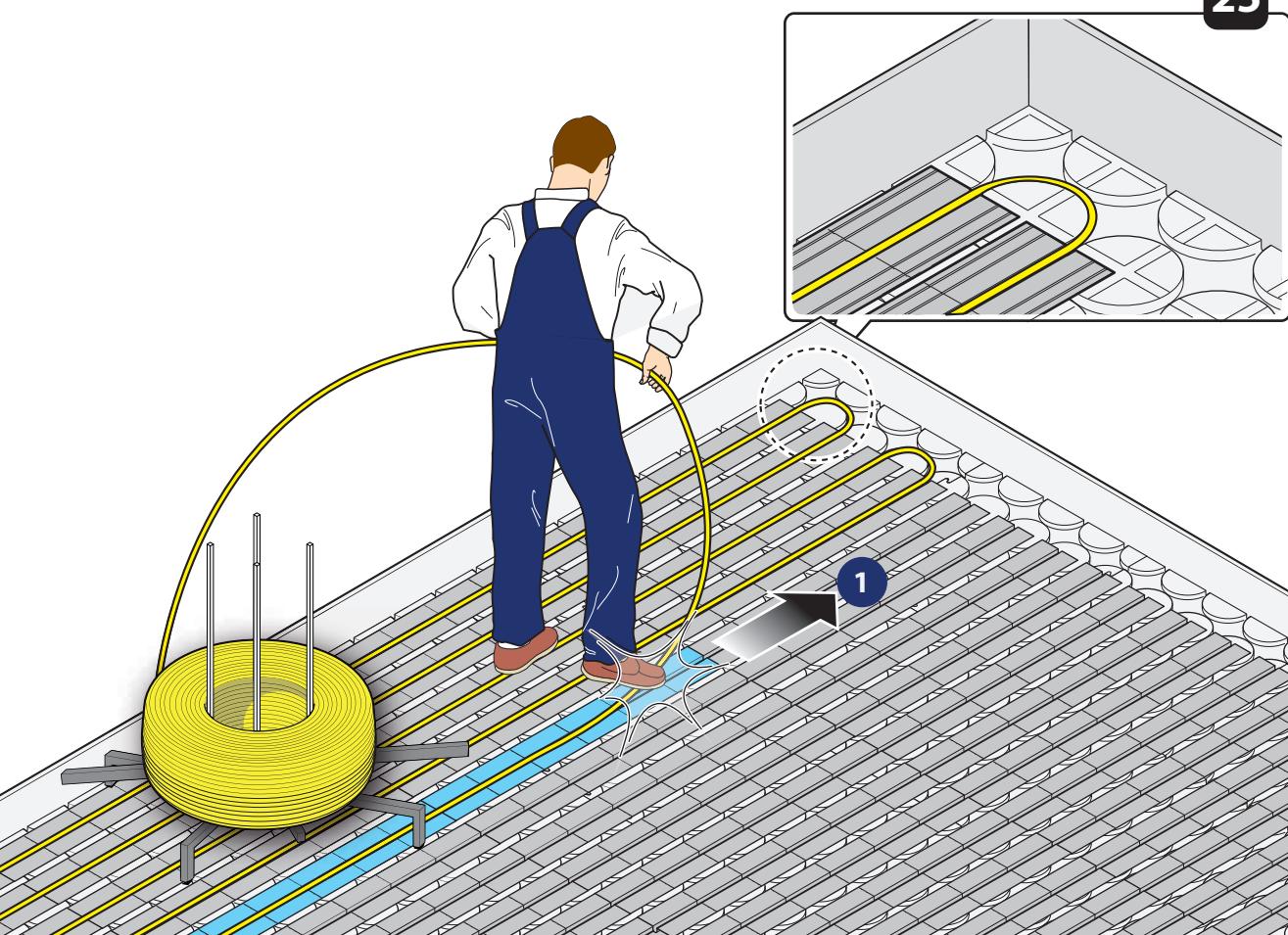
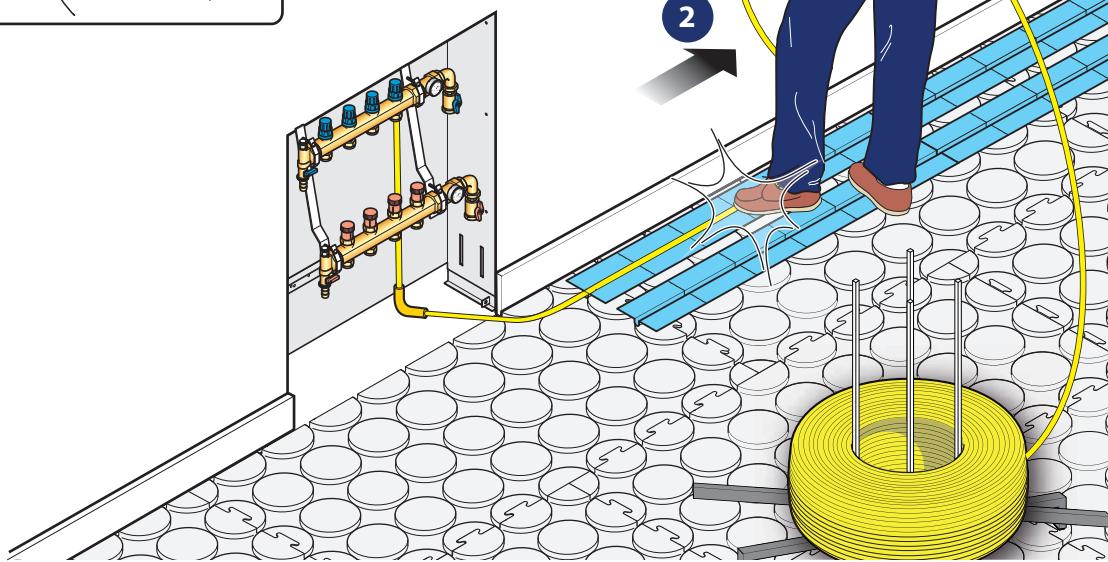
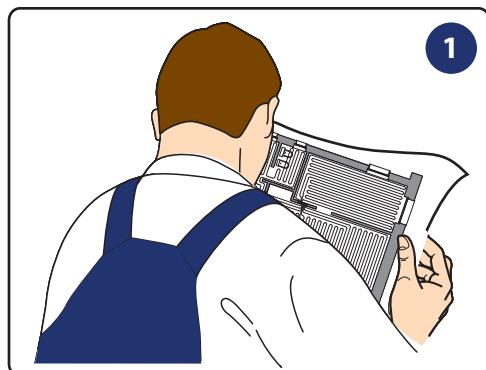
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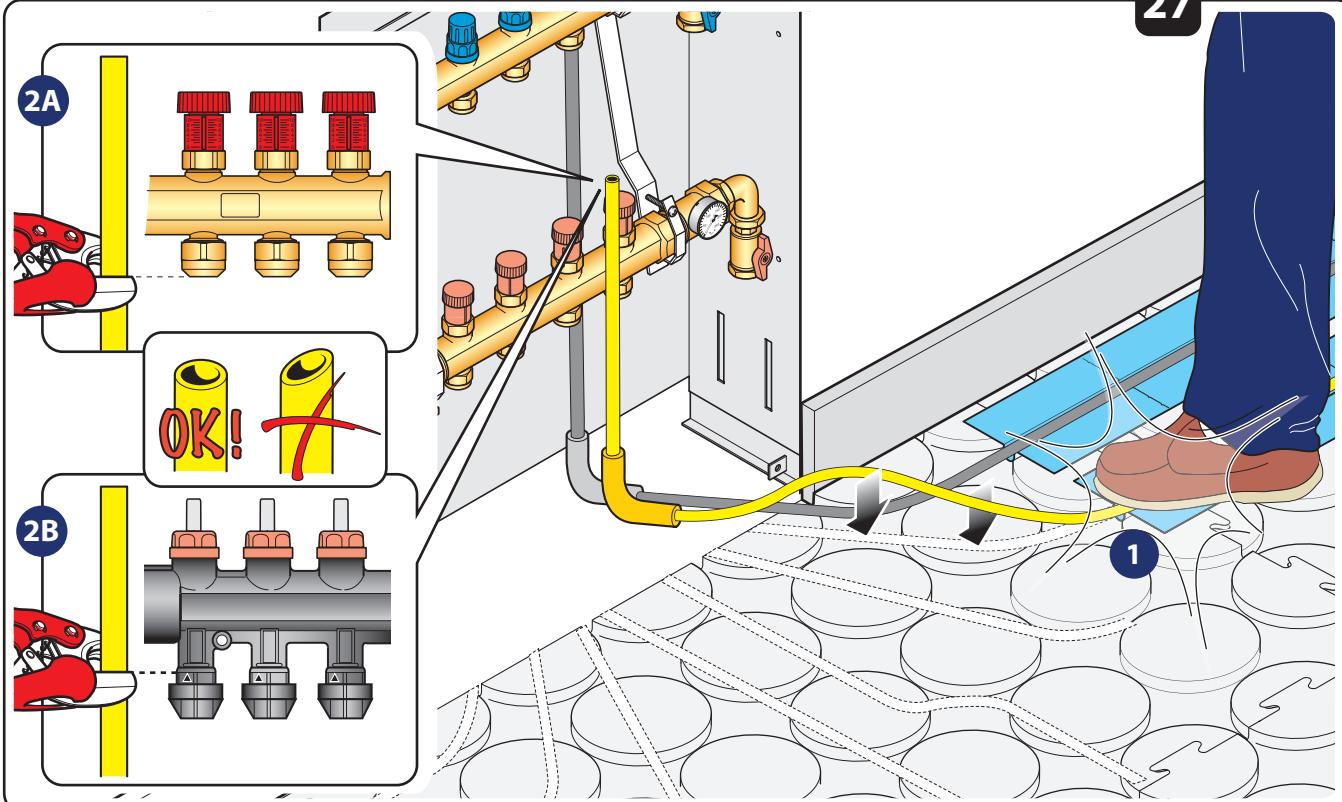
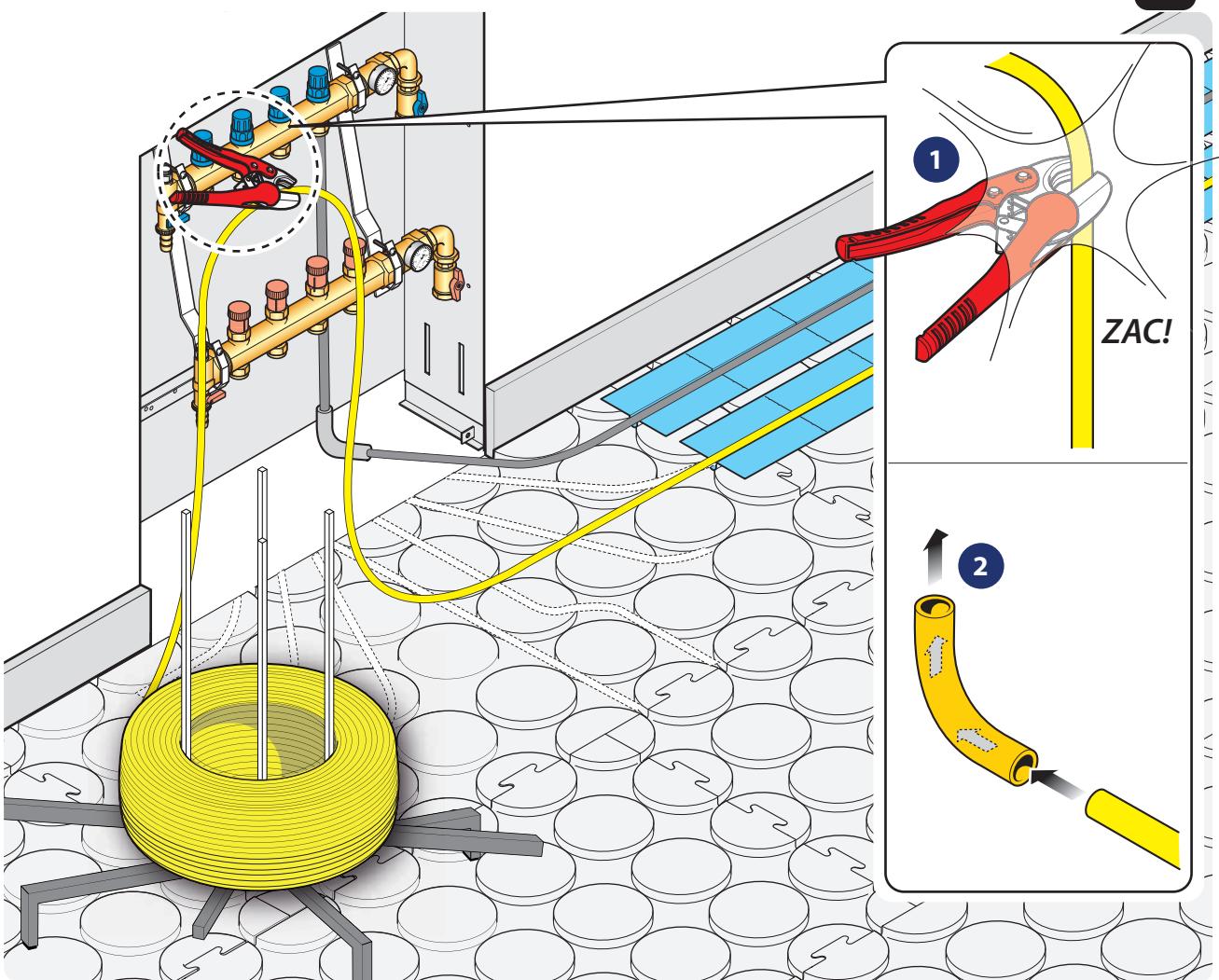
23B

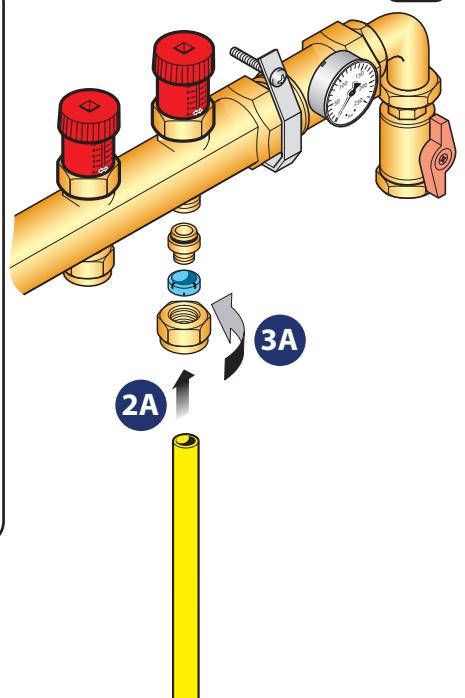
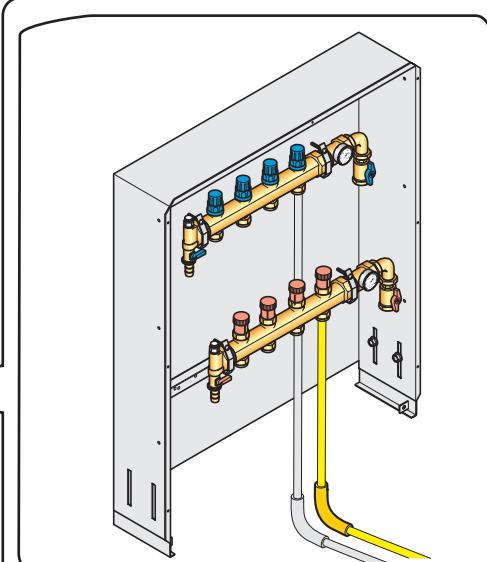
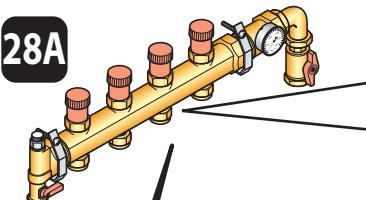
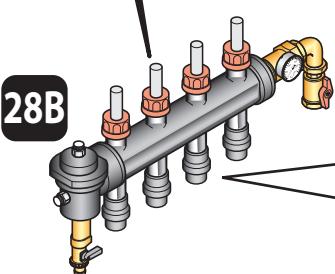
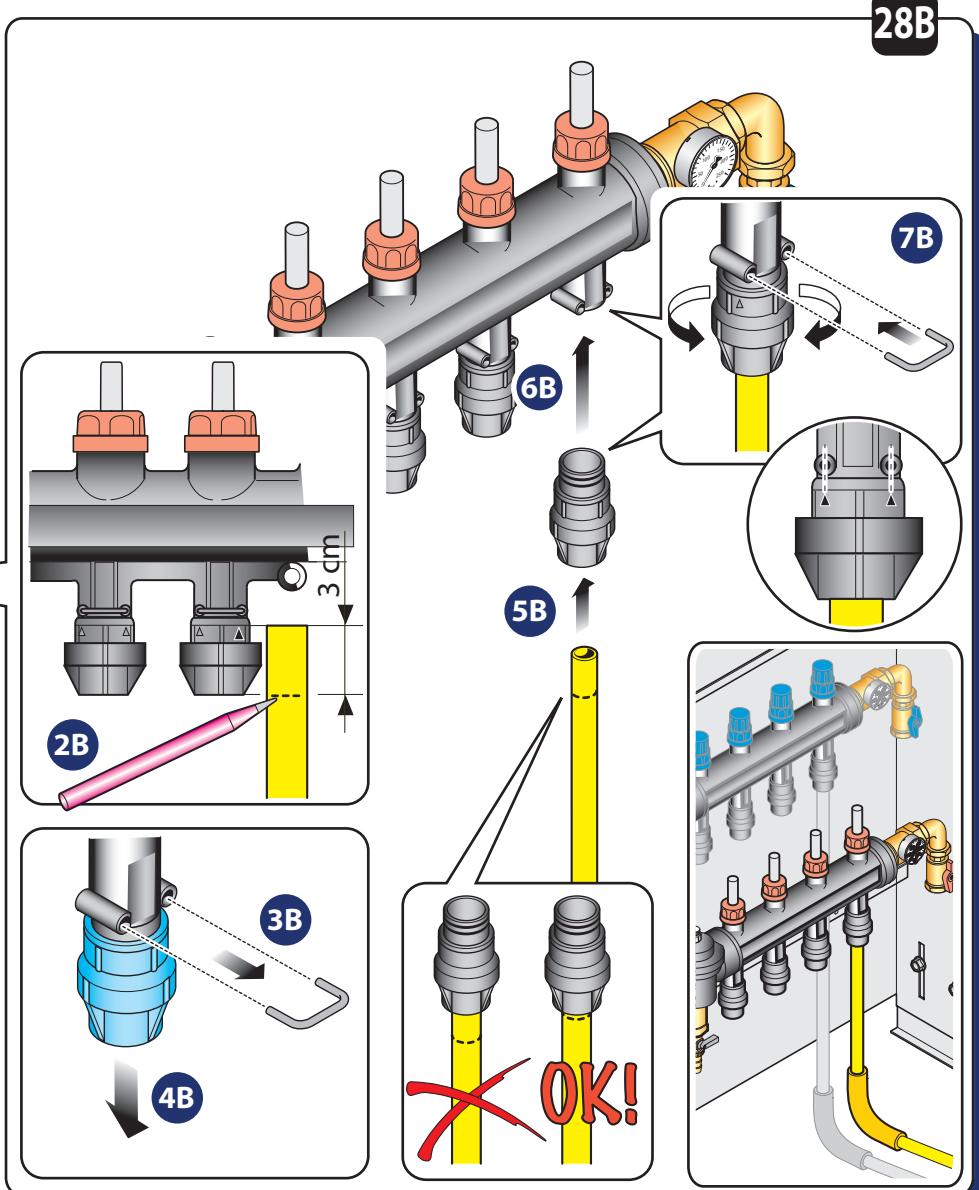


TOP-COMPOSIT



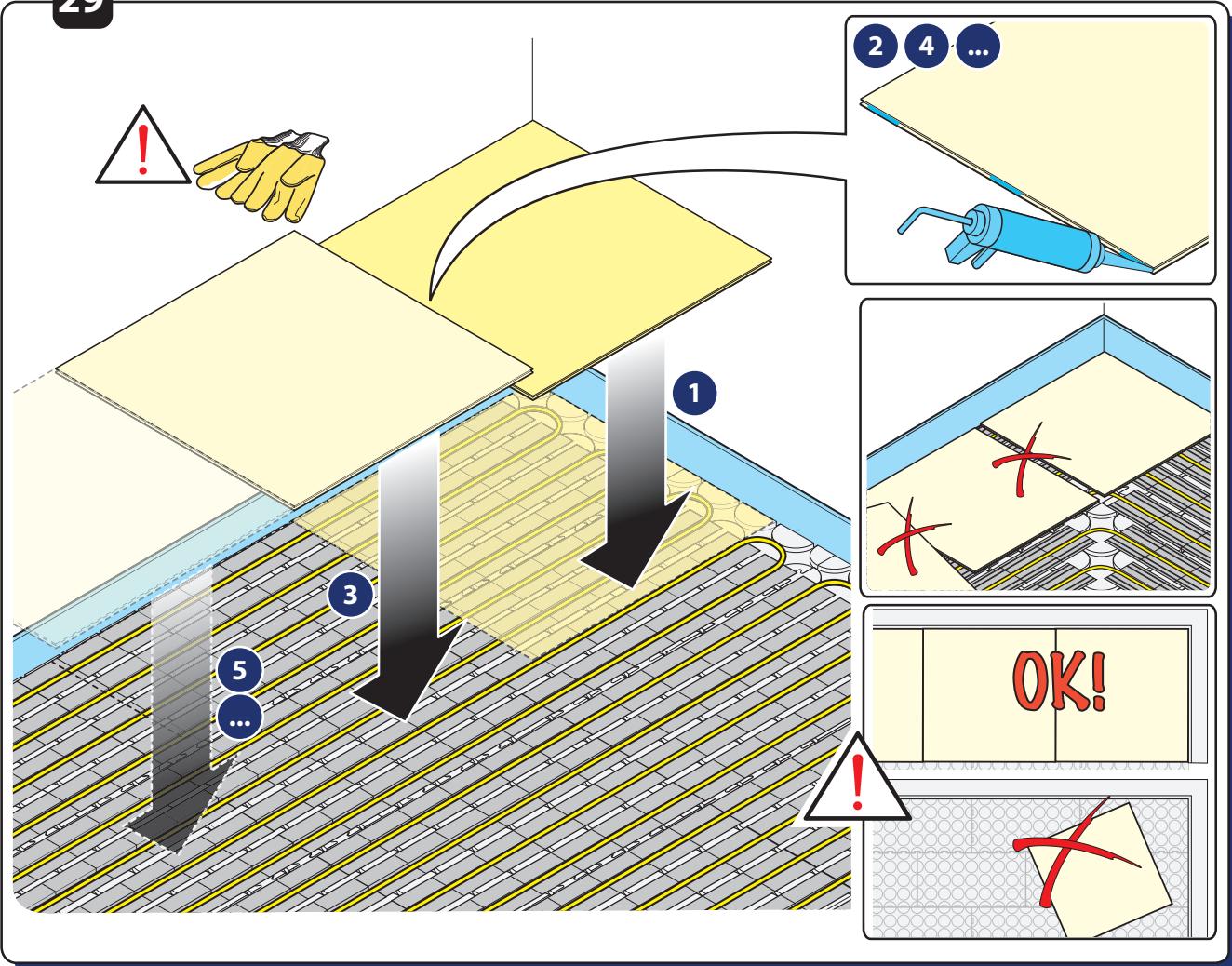




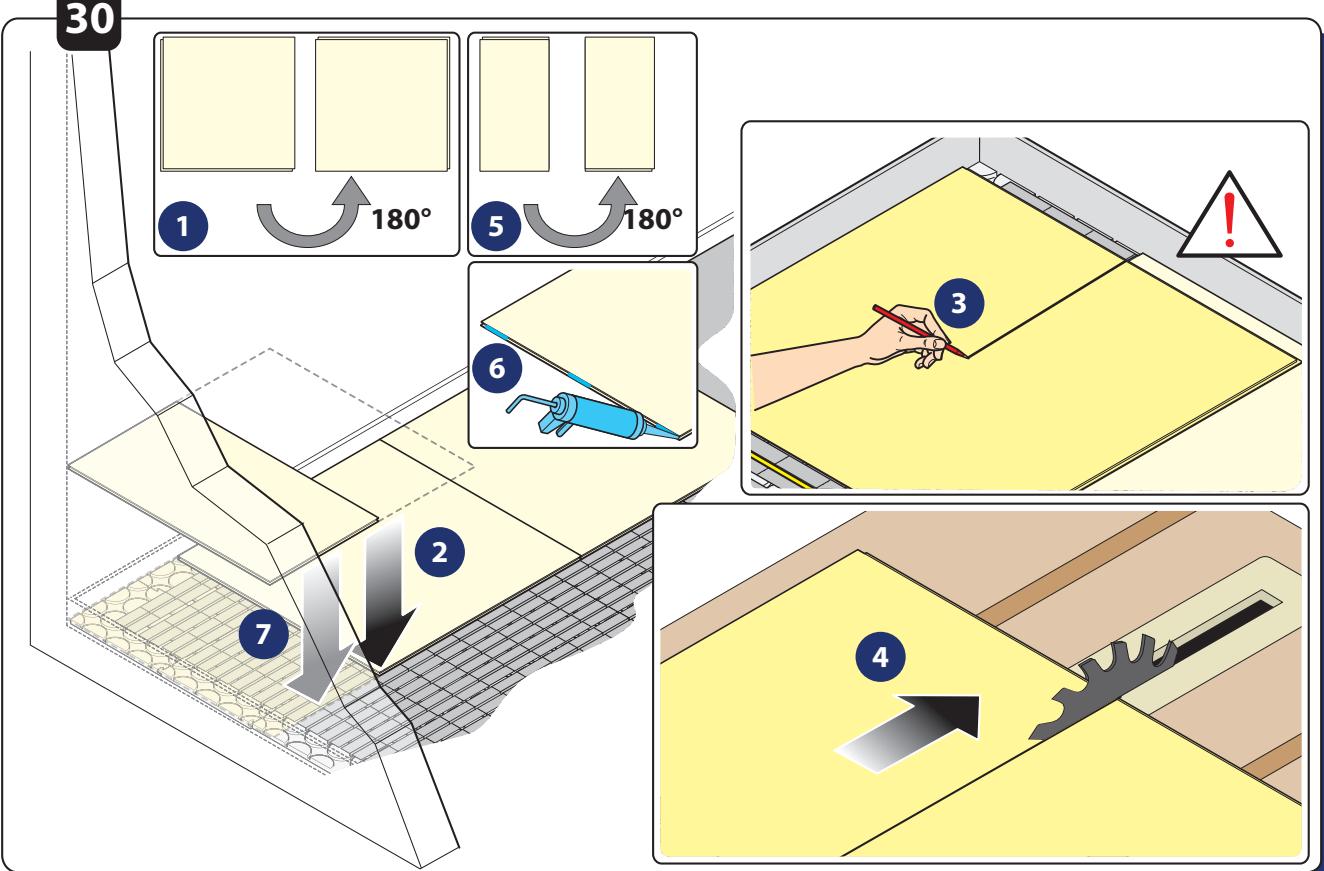
28A
**CONTROL
TOP-CONTROL**
28A

1
28B

TOP-COMPOSIT


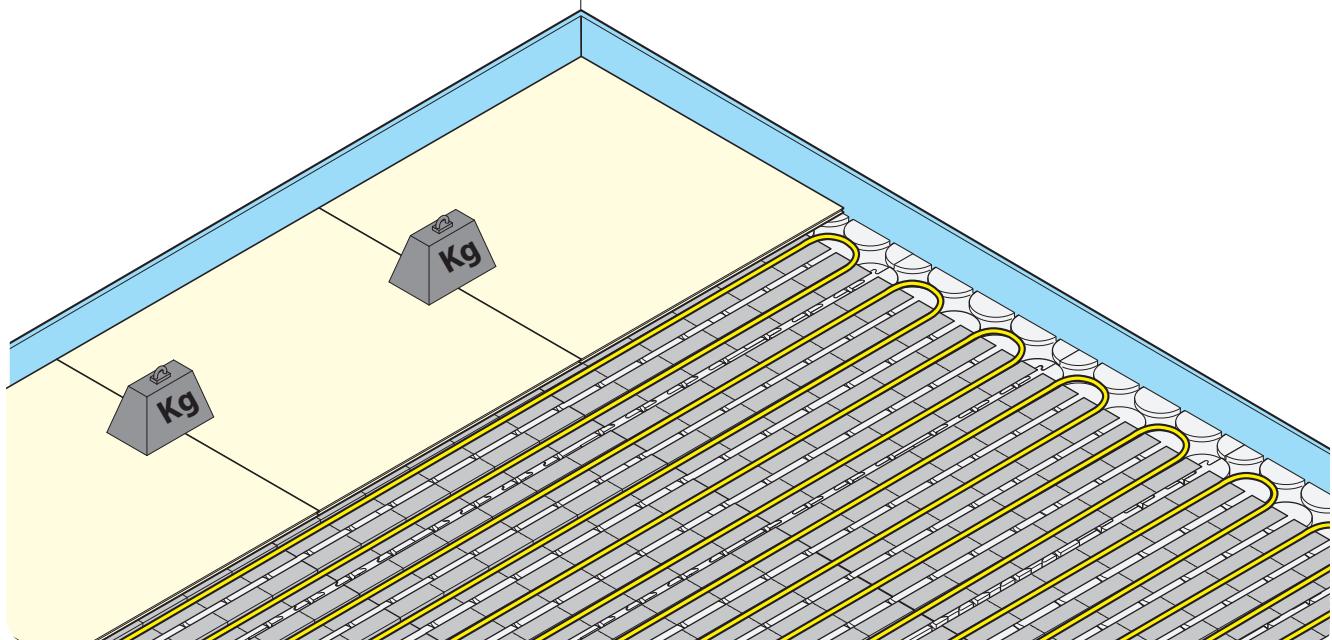
3.7 | INSTALLATION OF THE WEIGHT DISTRIBUTION LAYER - POSA DEL RIPARTITORE DI CARICO

29

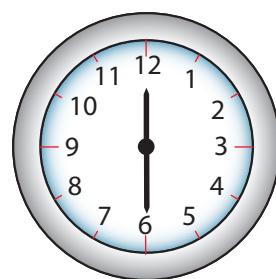


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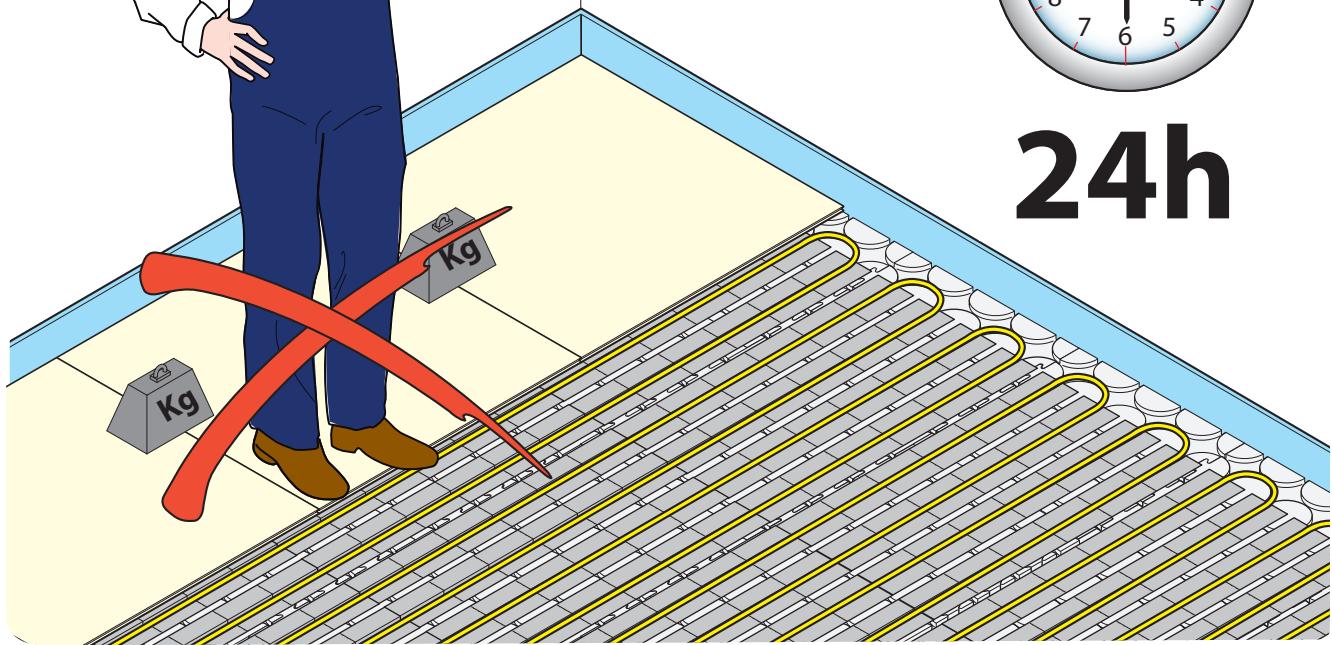




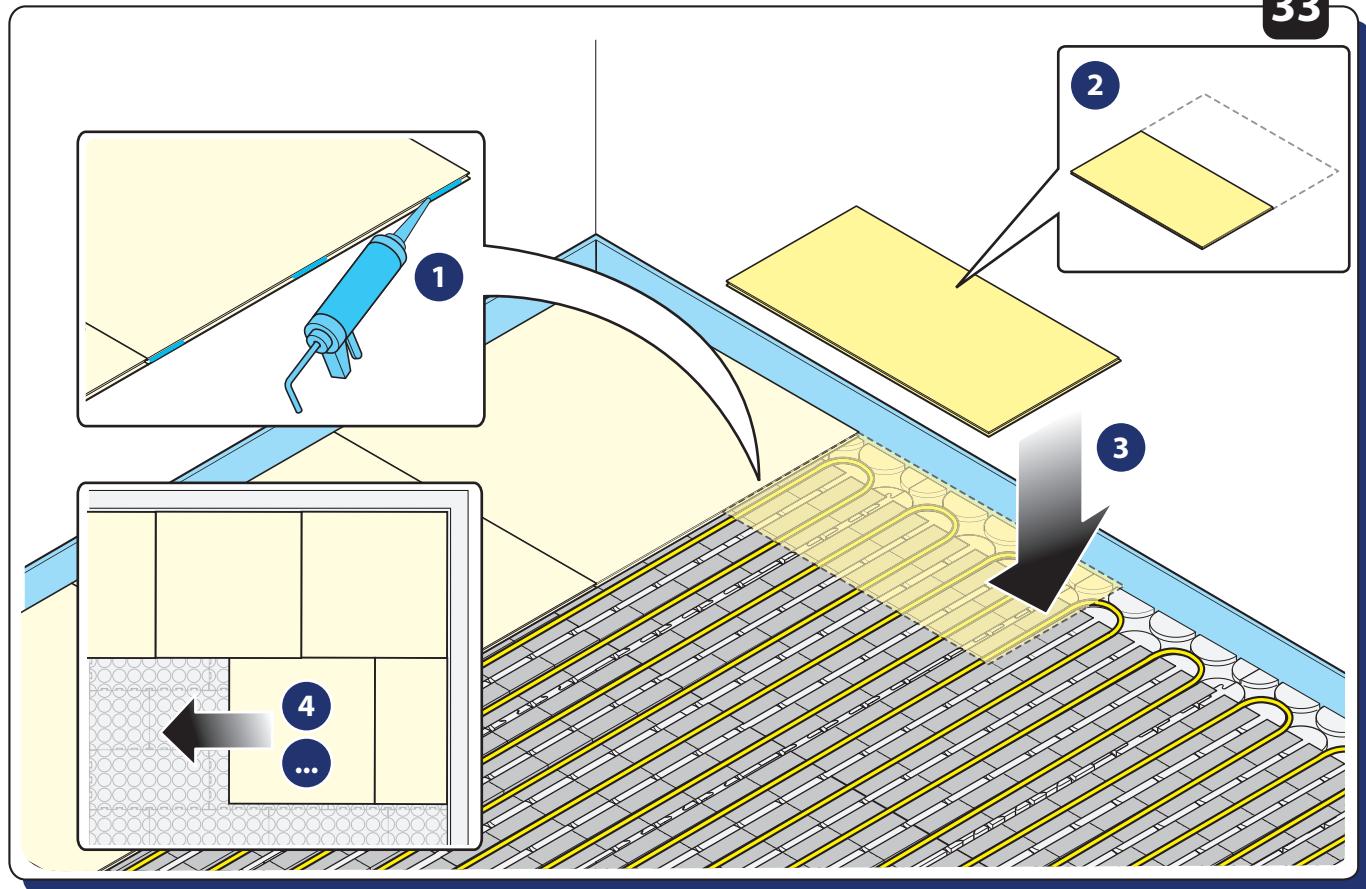
**WARNING
ATTENZIONE**



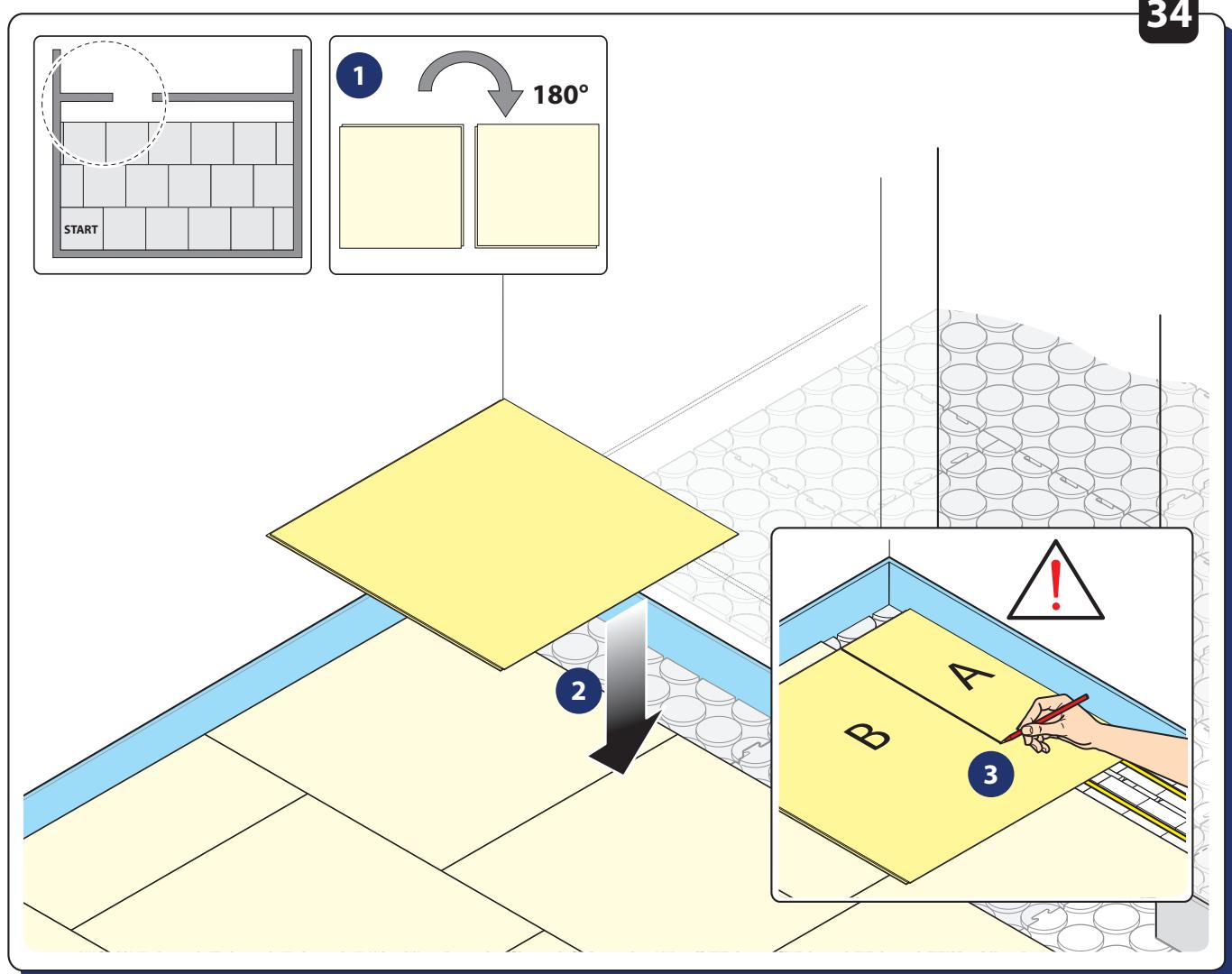
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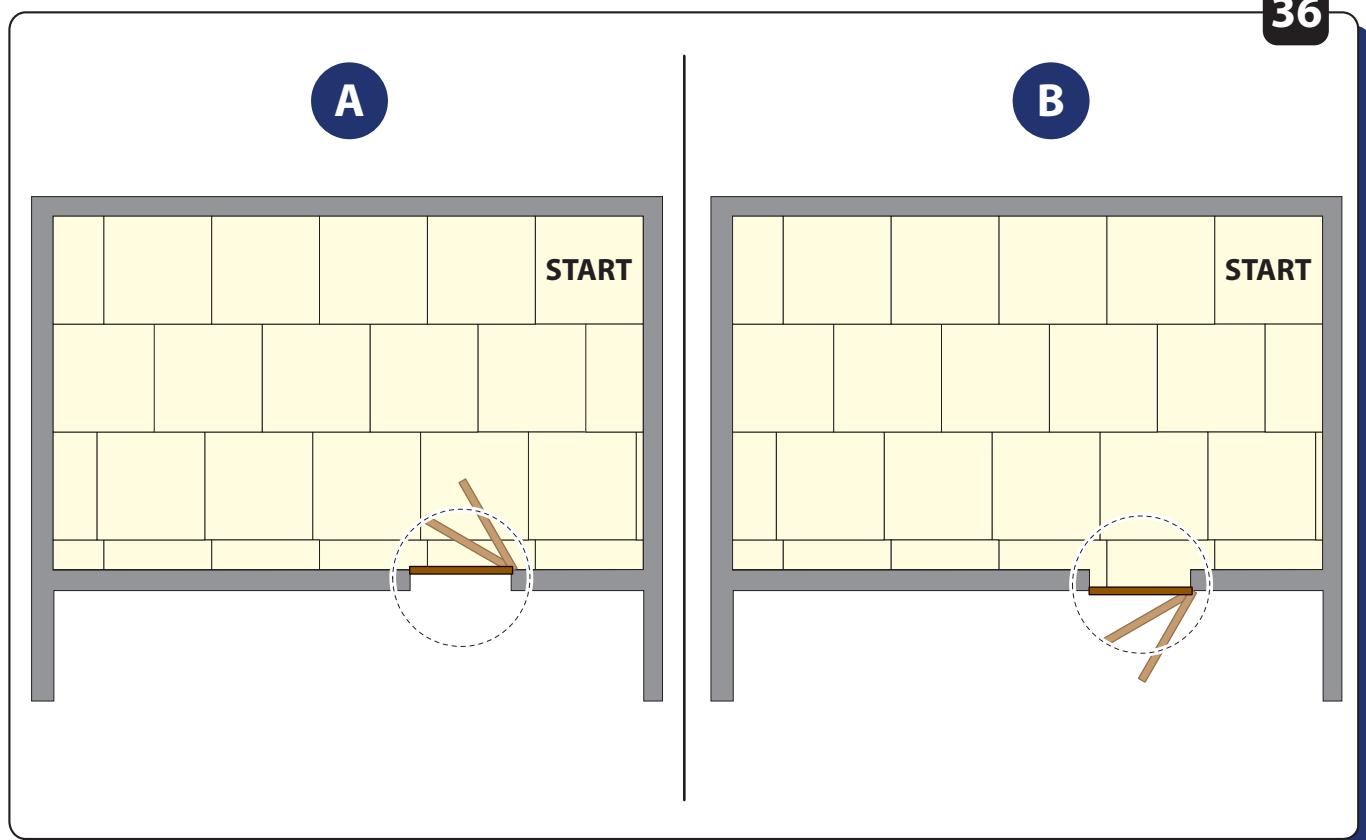
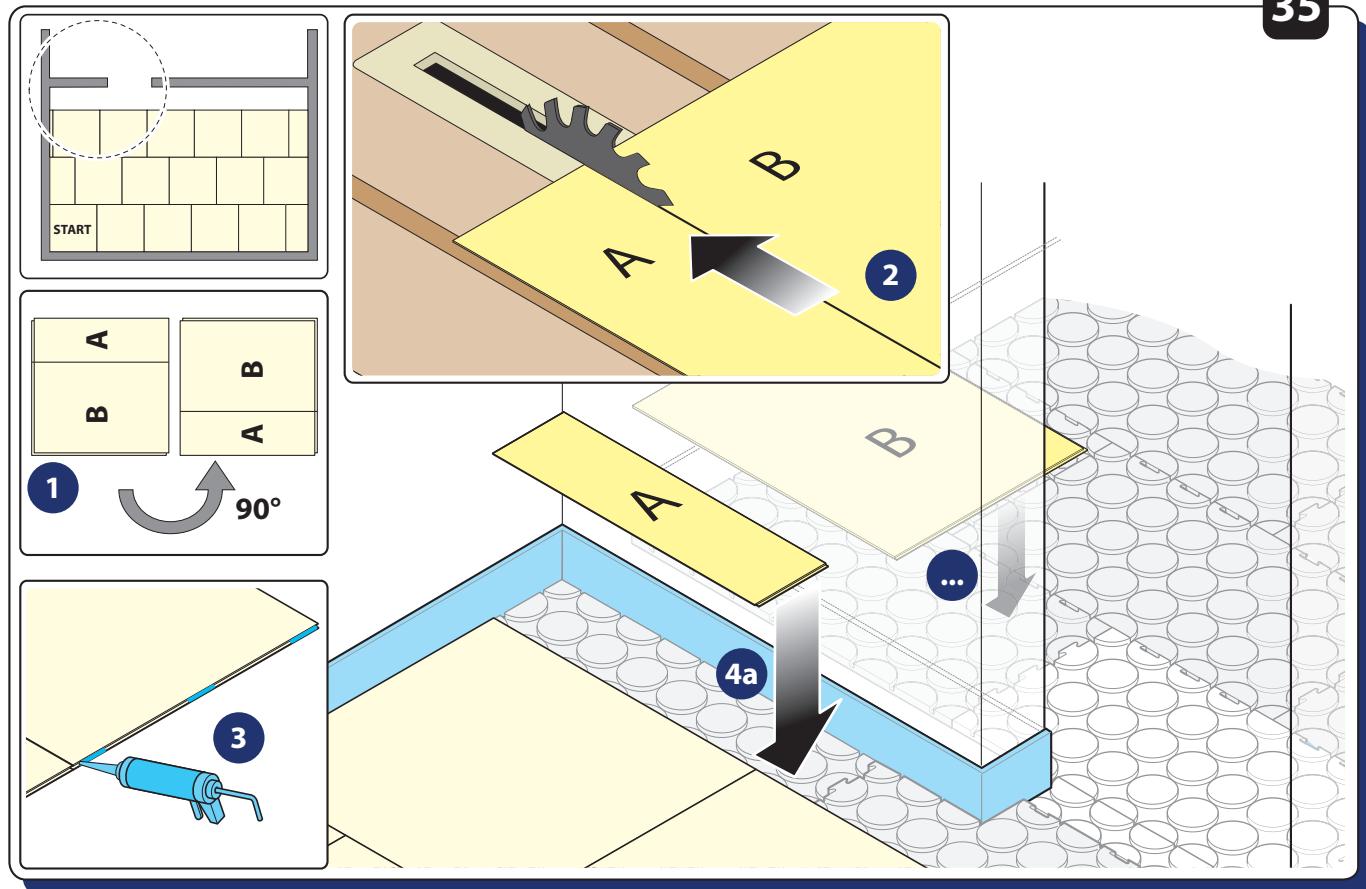


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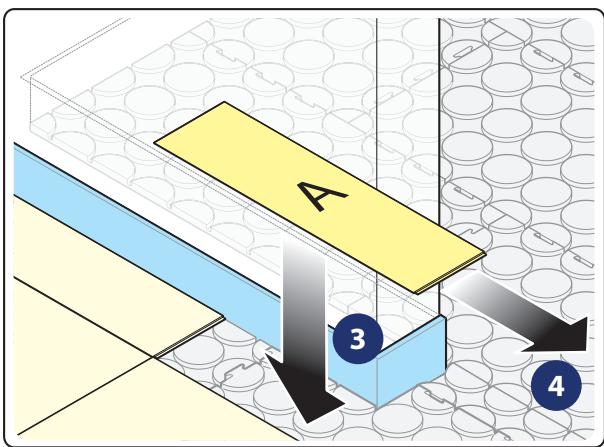
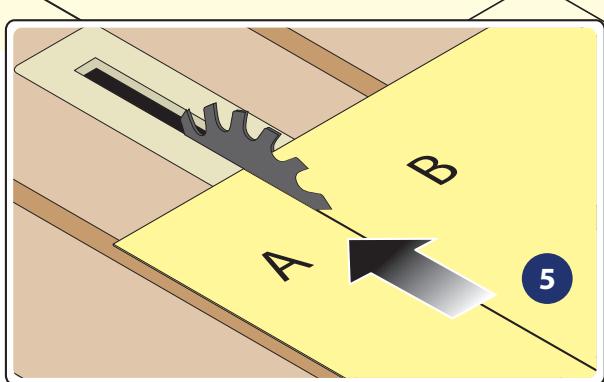
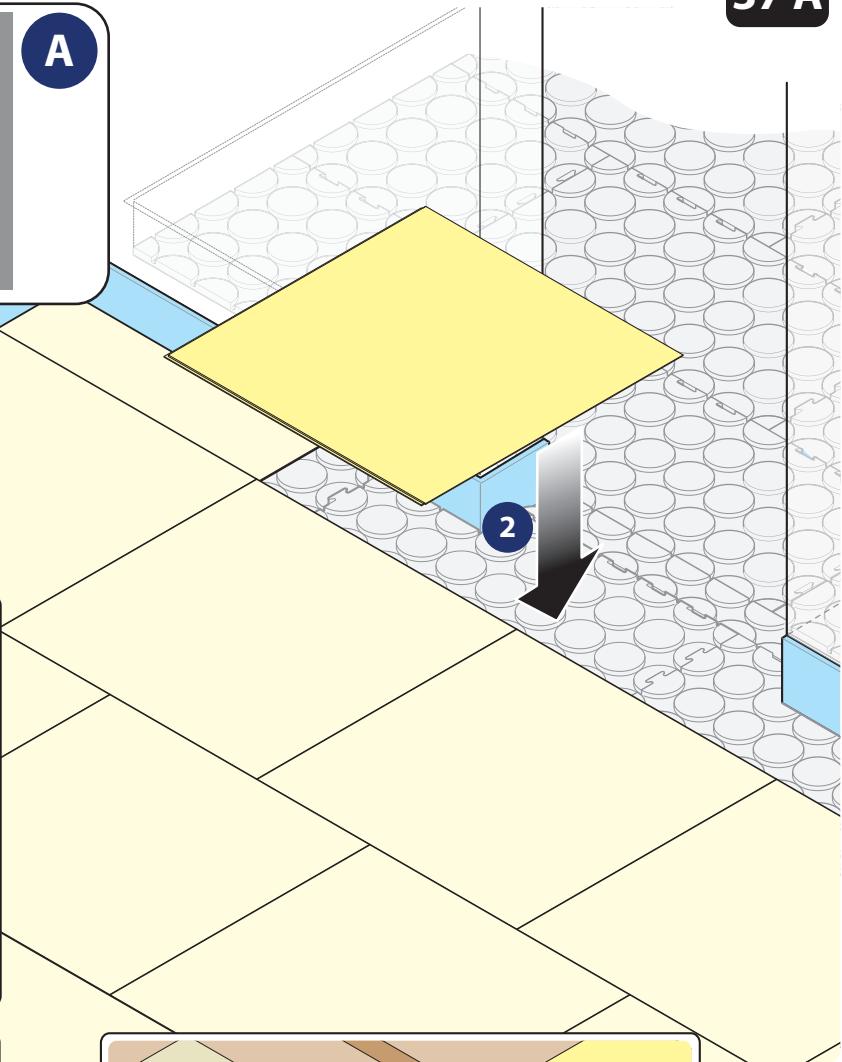
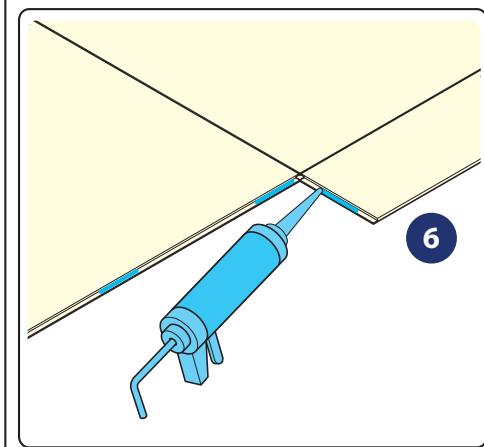
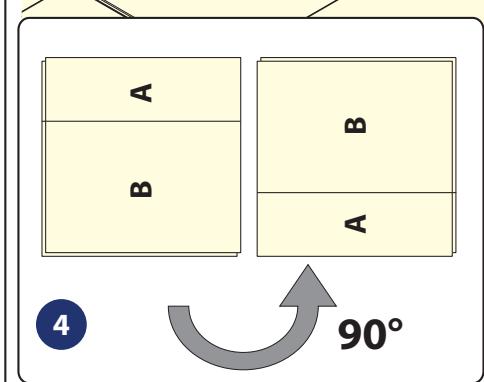
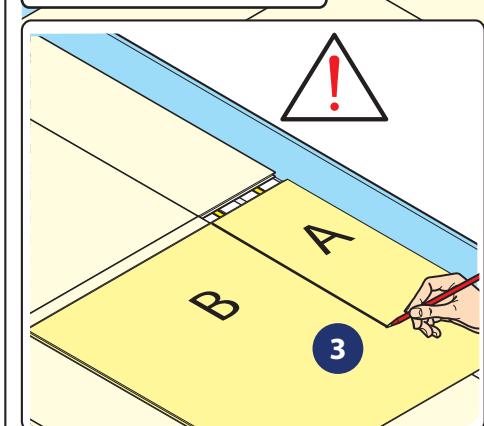
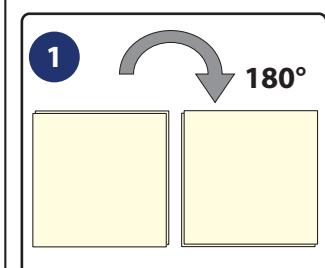
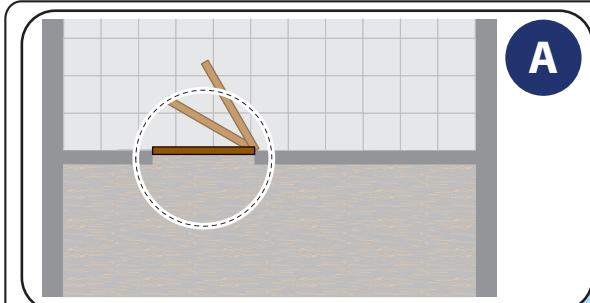
34







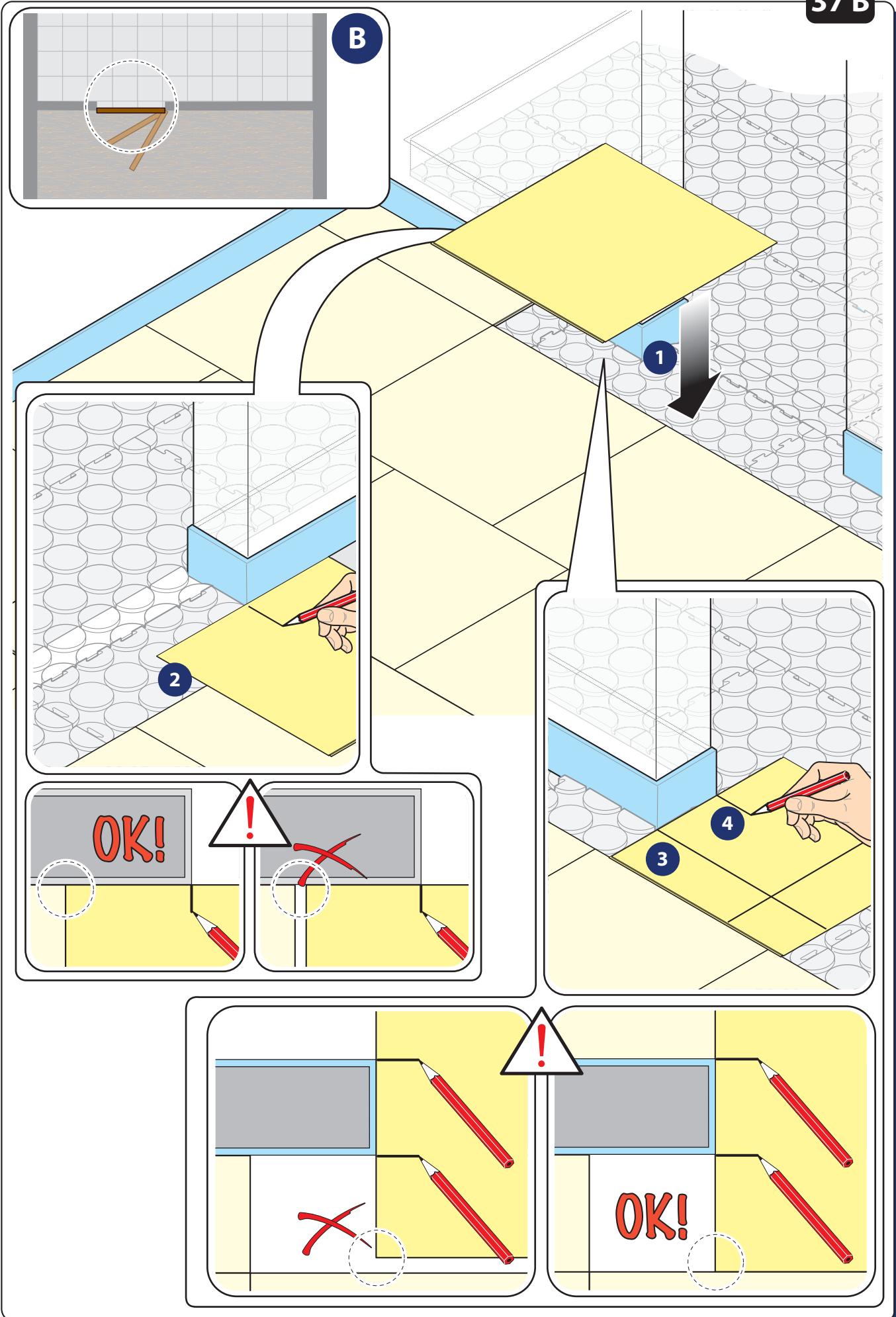
37 A



CONTINUE WITH STEP "40"
CONTINUARE POI CON LA SEQUENZA "40"

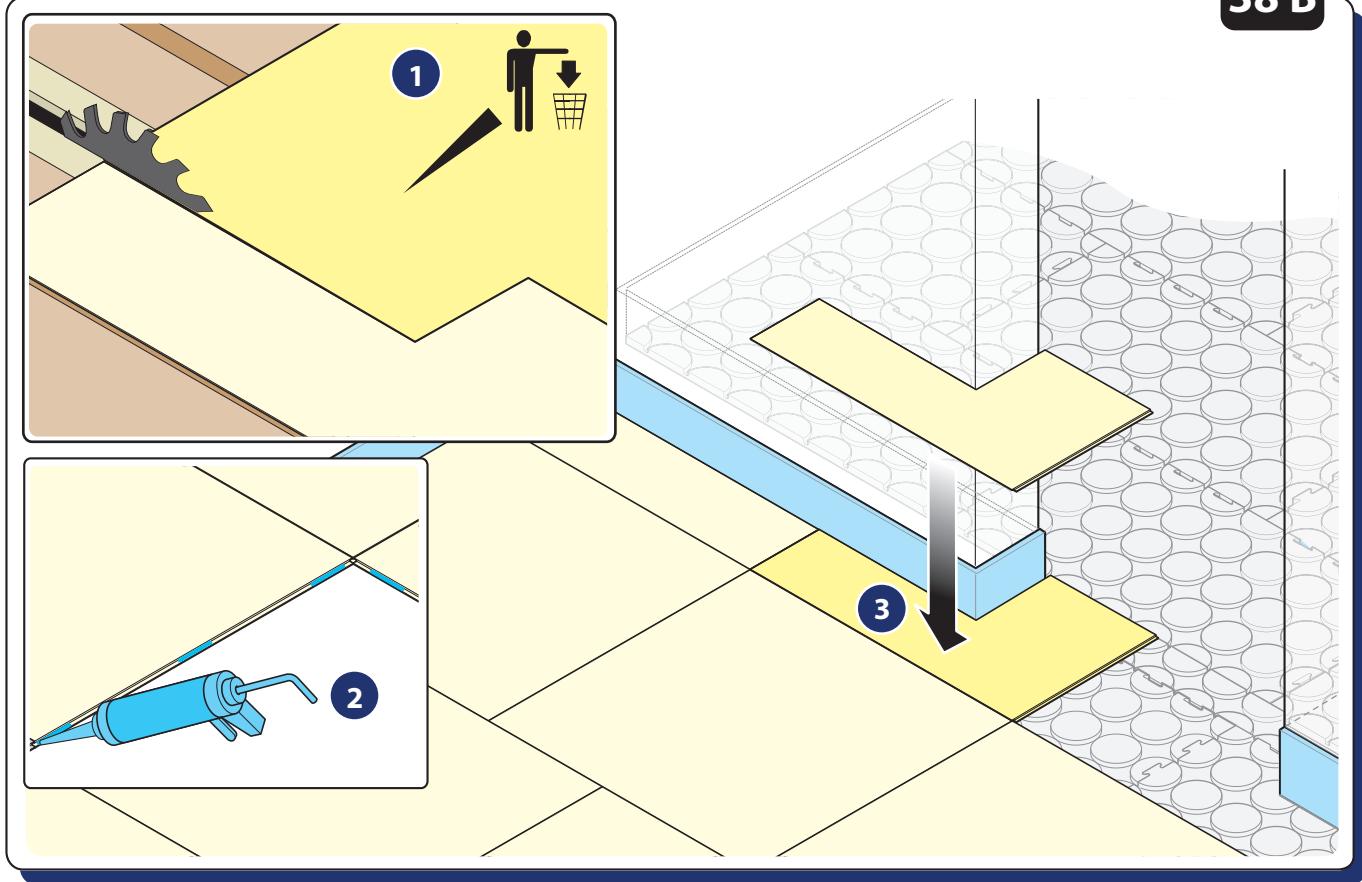


37 B

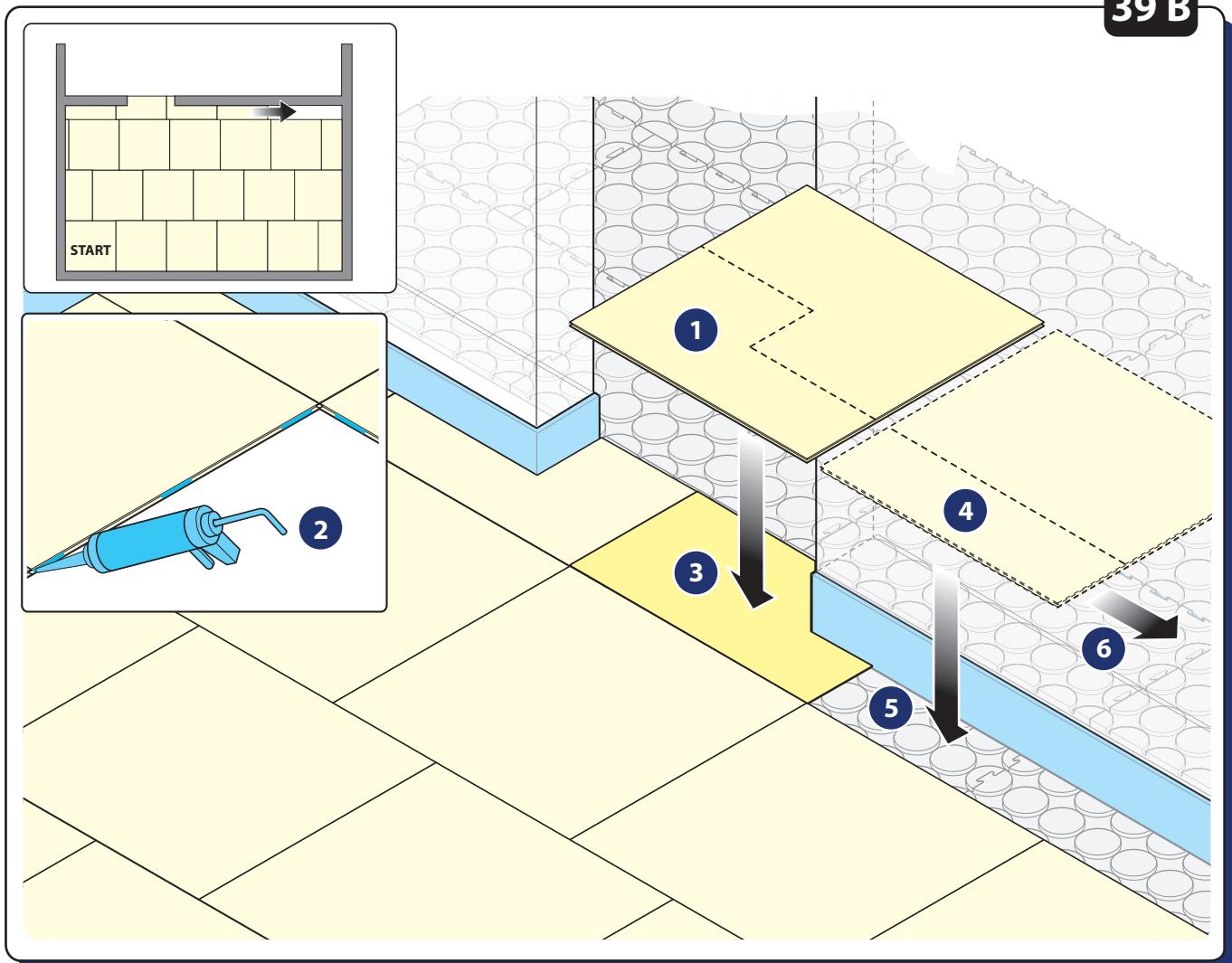


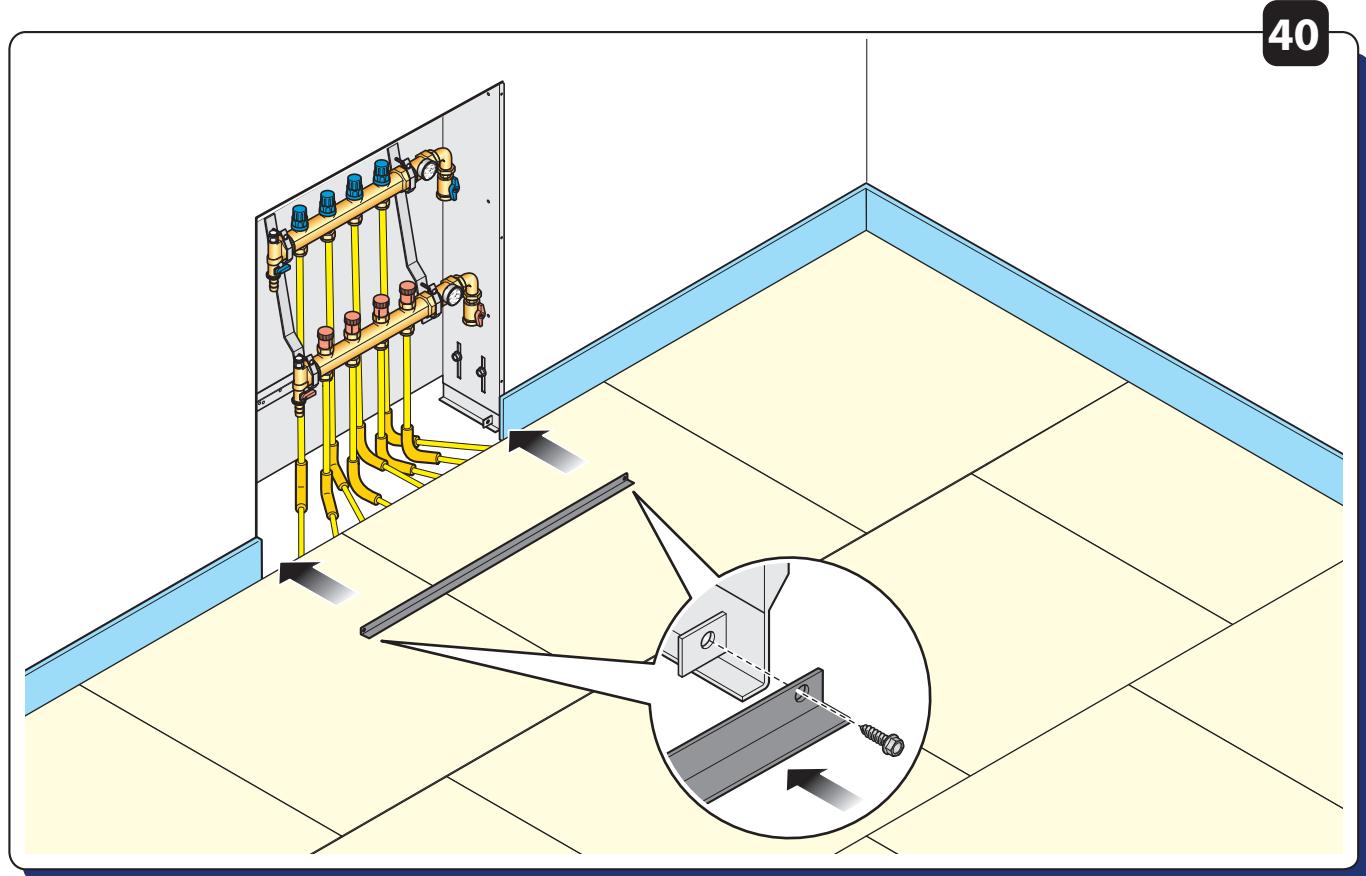
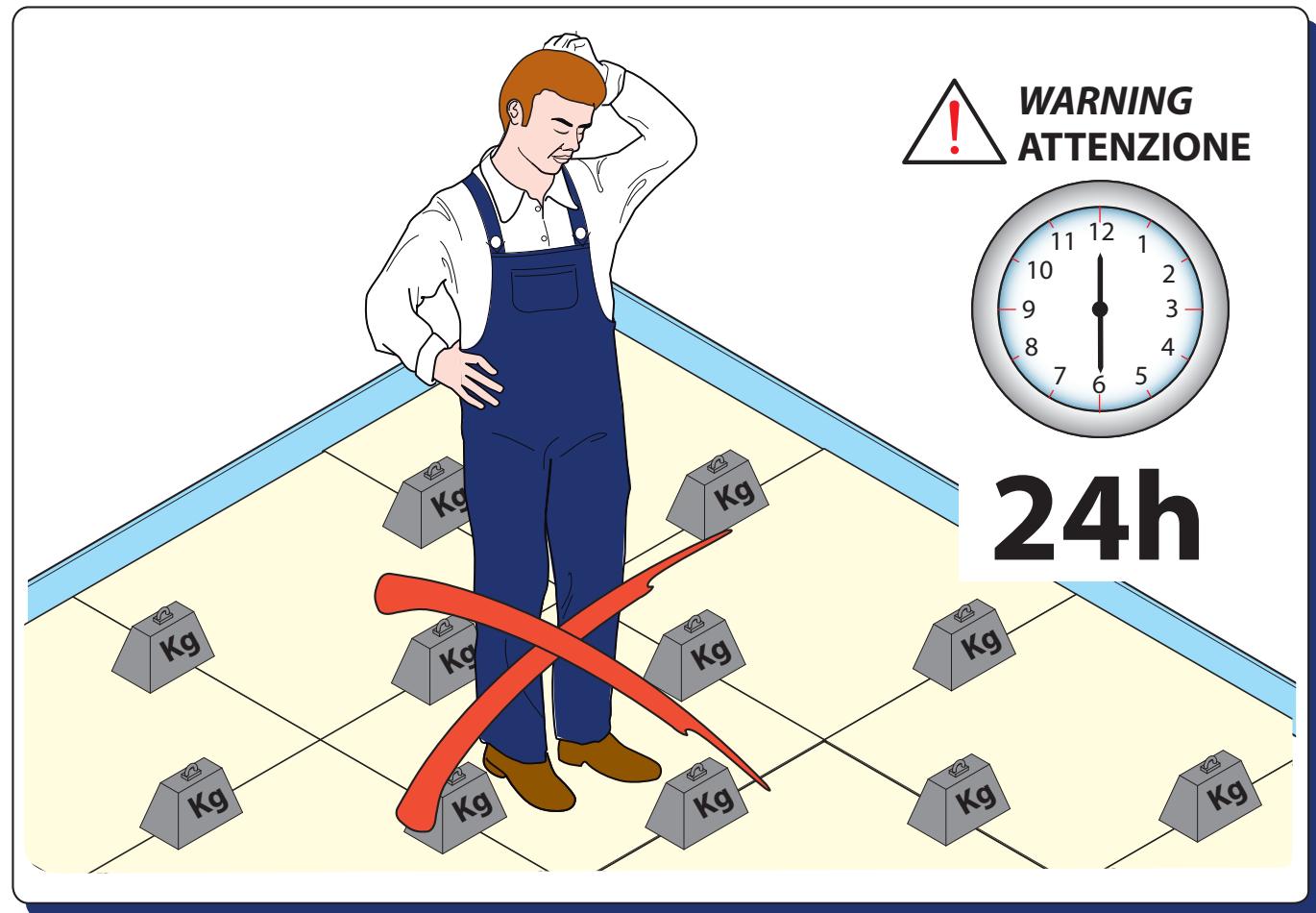


38 B



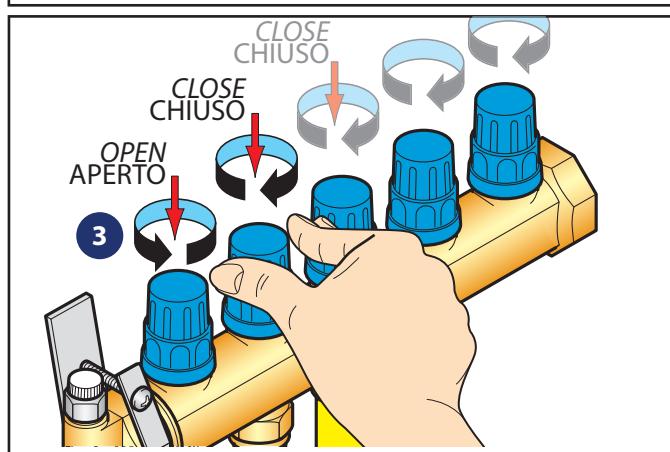
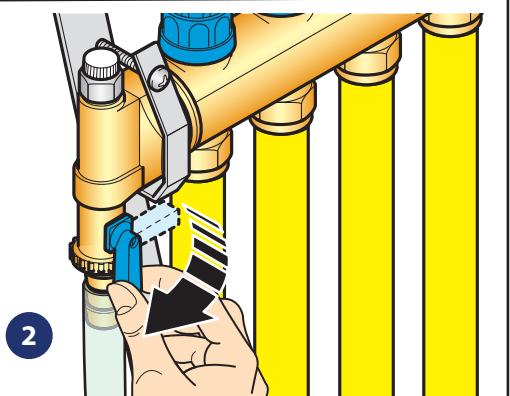
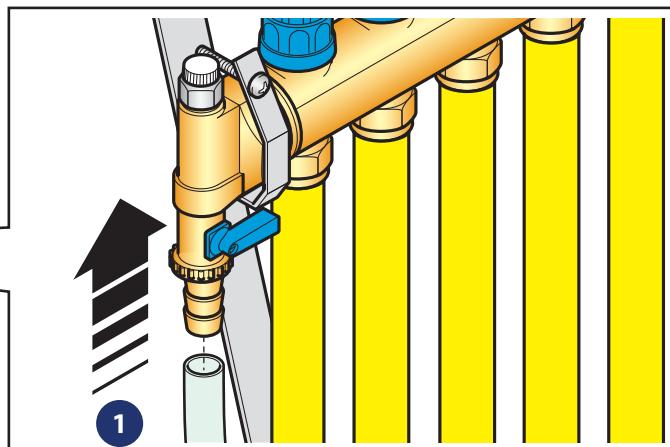
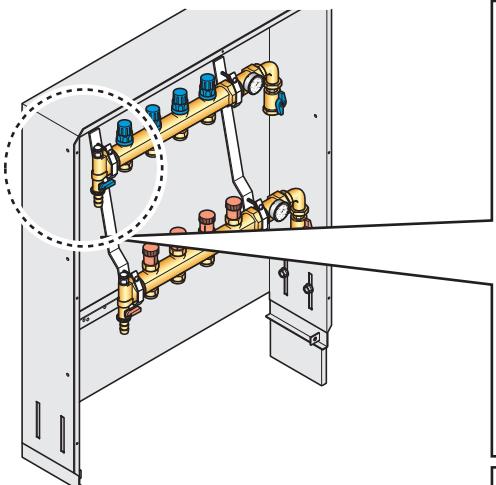
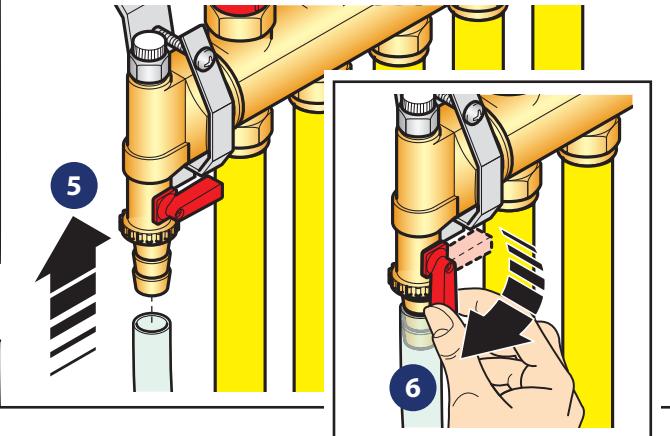
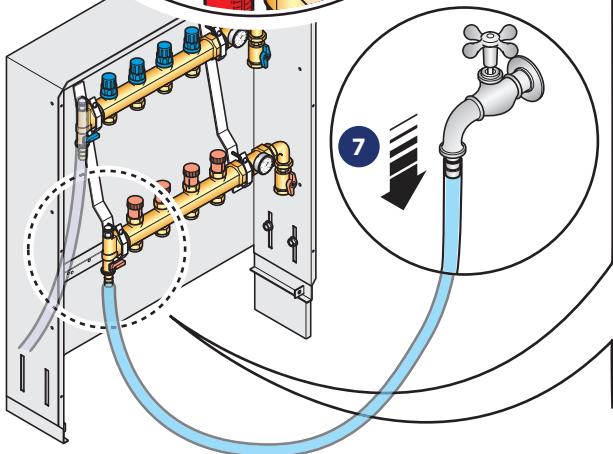
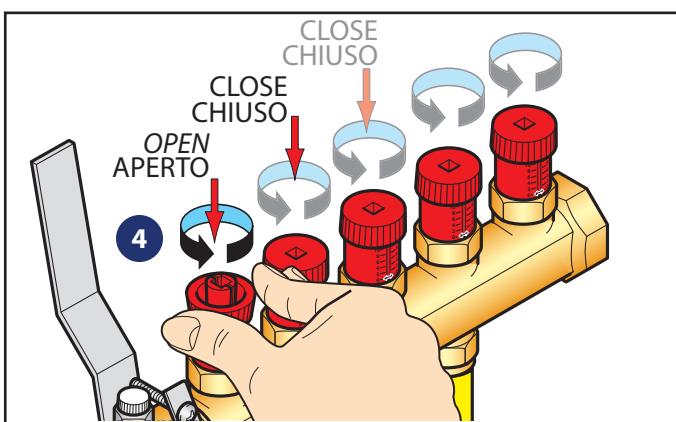
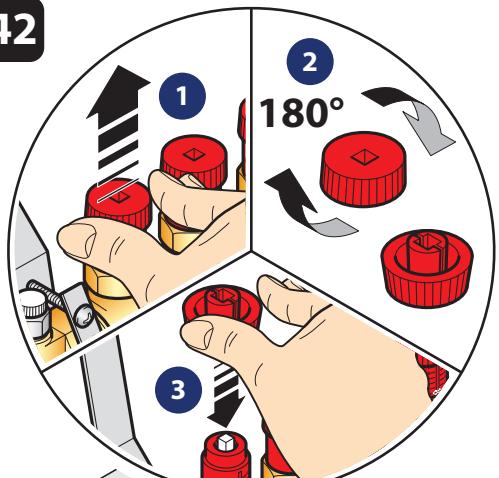
39 B

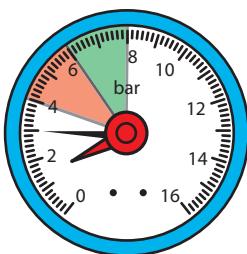
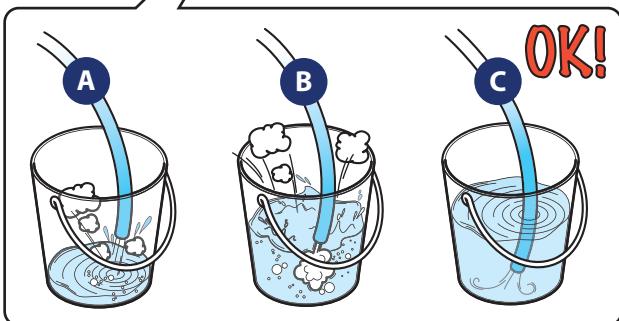
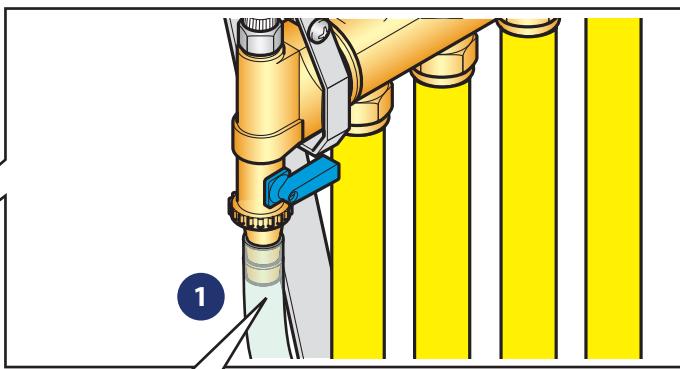
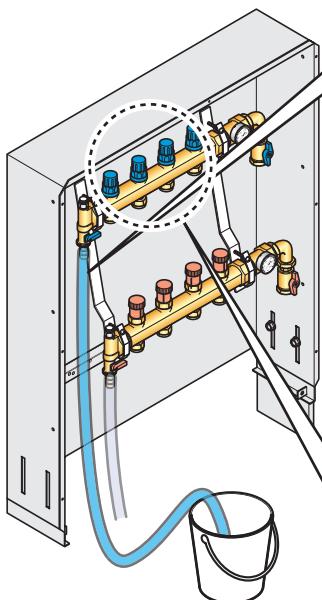


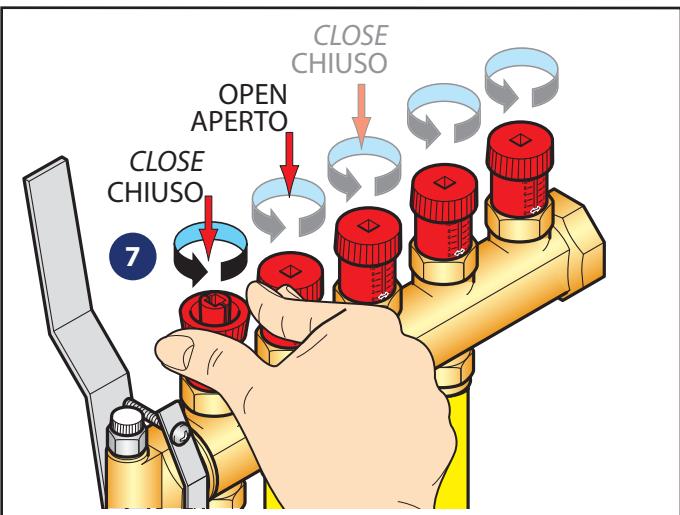
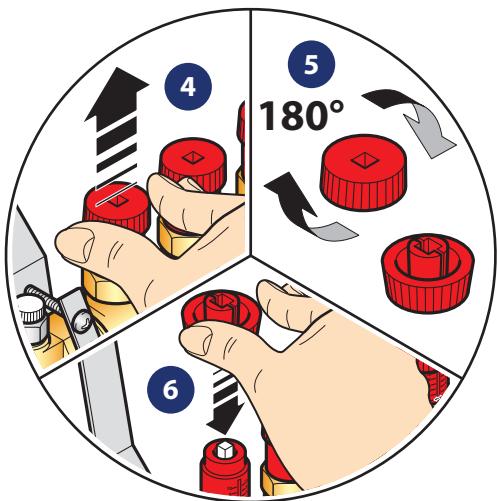
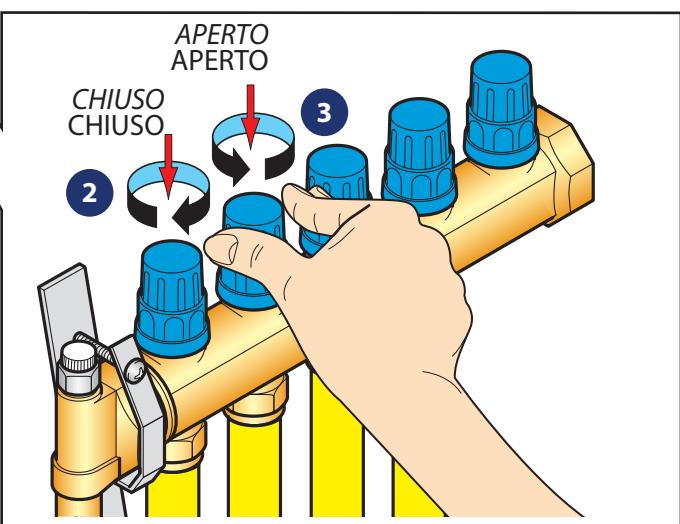


40

3.8 | SYSTEM FILLING - RIEMPIMENTO IMPIANTO

41**42**

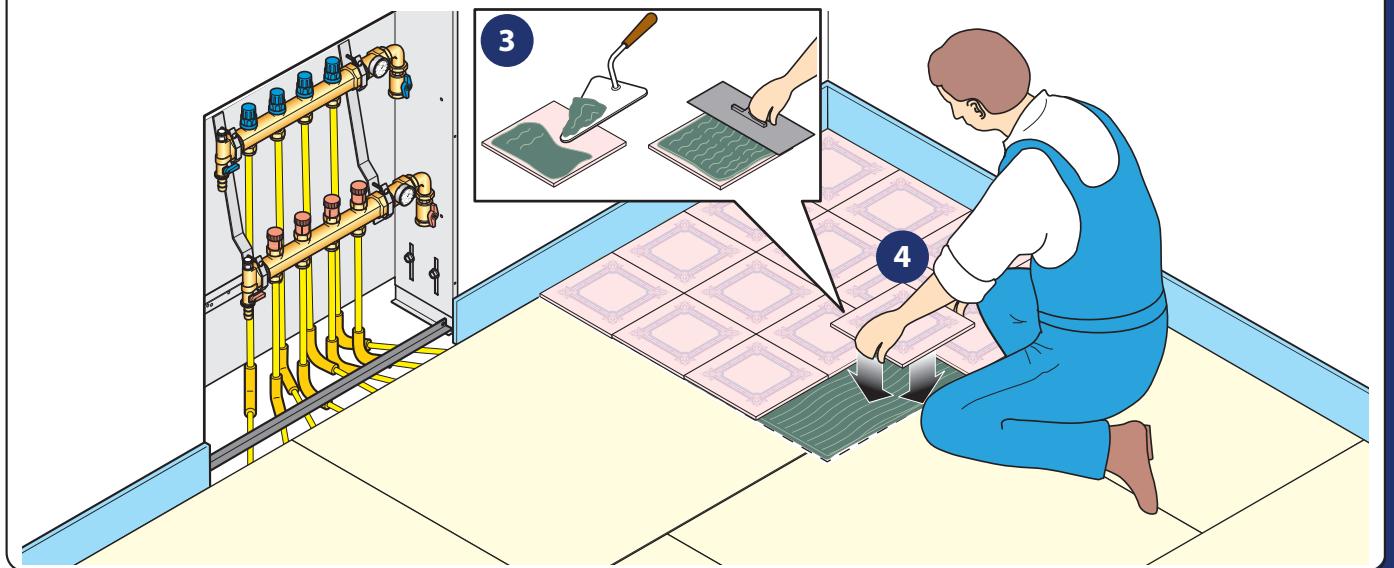
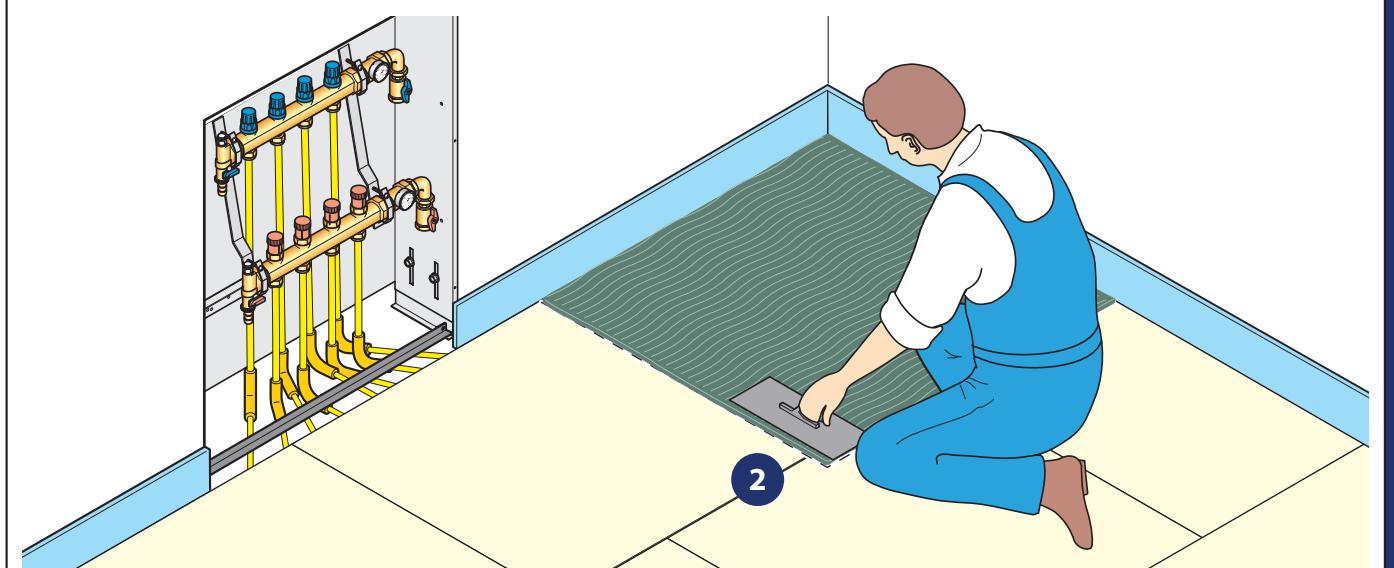
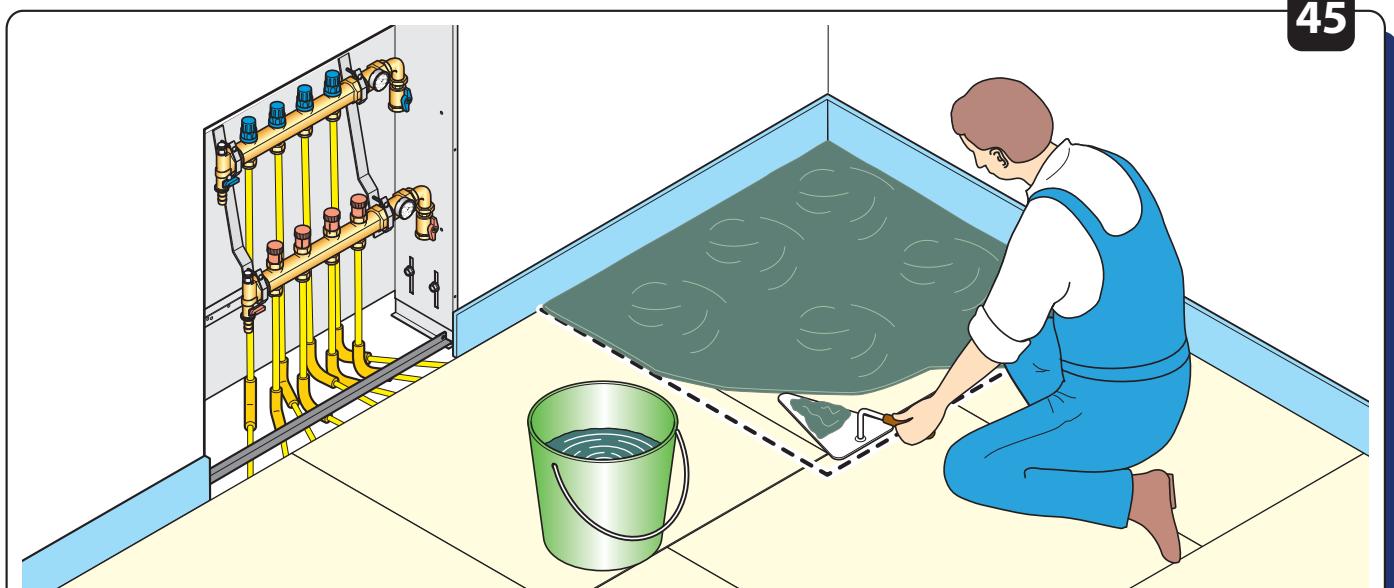
43

CONTROL - TOP CONTROL
6÷8 bar

TOP COMPOSIT
4÷6 bar


The system shall be kept with pressure until the work is finished (flooring excluded)

La tenuta in pressione dell'impianto dovrà avvenire fino al completamento dei lavori (rivestimenti esclusi)







INSTRUCTIONS ABOUT GROUTING

It is forbidden to use it with flooring without grout.

The space between the tiles (≥ 4 mm) depends on the kind of the flooring and it shall consider any upright movement of the covering itself, even if limited, in order to avoid friction and breaking of the tiles before grouting.

According to the supplier of the grouting, its size shall be enough to ensure a suitable resistance of the flooring in order to avoid any vertical movement, which can be caused by a wrong levelling of the base and crack the grouting.

Suitable laying is ensured only if epoxy grout is used.

INDICAZIONI PER LE FUGHE

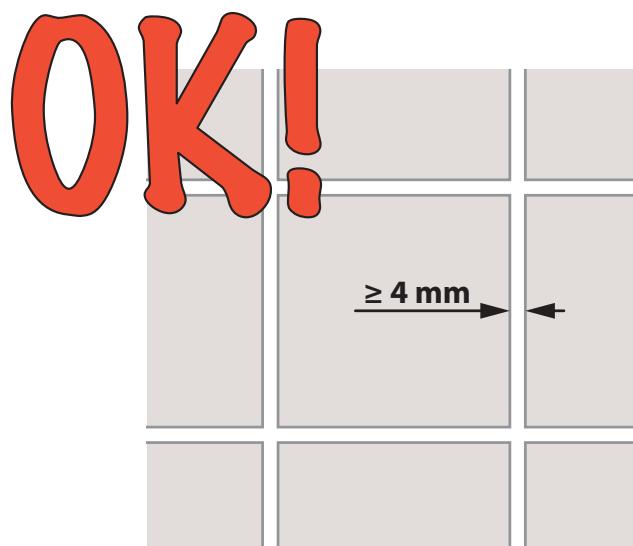
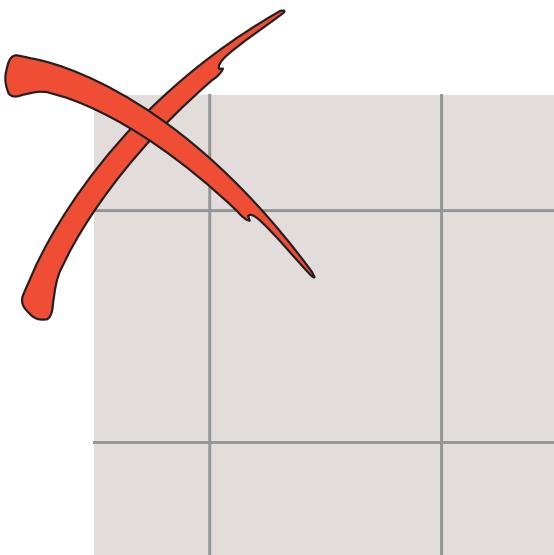
E' vietata la posa di rivestimenti privi di fughe.

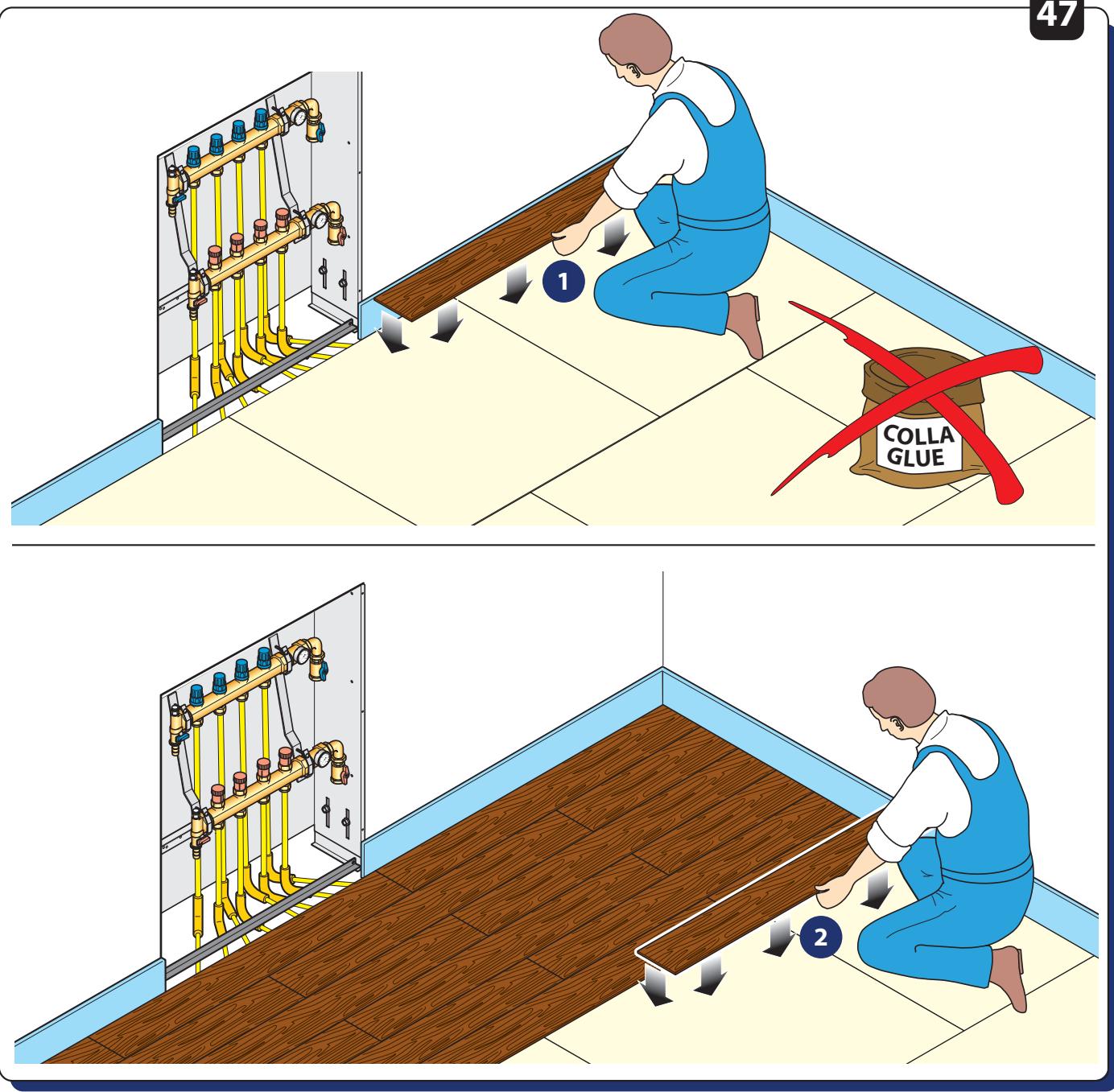
Lo spessore delle fughe (≥ 4 mm) dovrà essere commisurato al formato del rivestimento adottato e comunque dovrà tener conto di eventuali movimenti verticali, anche se limitati del rivestimento, tutto ciò al fine di evitare lo sfregamento (con conseguente rottura) delle piastrelle antecedente alla posa del fugante.

Lo spessore delle fughe inoltre, in accordo con il fornitore del fugante stesso, dovrà essere tale da garantire una adeguata robustezza della pavimentazione al fine di evitare che eventuali movimenti verticali (causati da un non adeguato livellamento del sottofondo) possano fessurare le fughe stesse.

La posa viene garantita solamente in presenza di fugante di tipo epossidico.

46





We suggest you should avoid sticking wooden flooring with glue since the change in temperature and humidity on the flooring itself can cause cross tension between covering and weight distribution layer and raising of the flooring.



L'incollaggio dei rivestimenti lignei è sconsigliato, in quanto le variazioni termo-igrometriche nel rivestimento stesso creano tensioni trasversali tra il rivestimento e il ripartitore provocando l'inarcamento o il sollevamento dei bordi del pacchetto incollato.

OTHER FLOORINGS

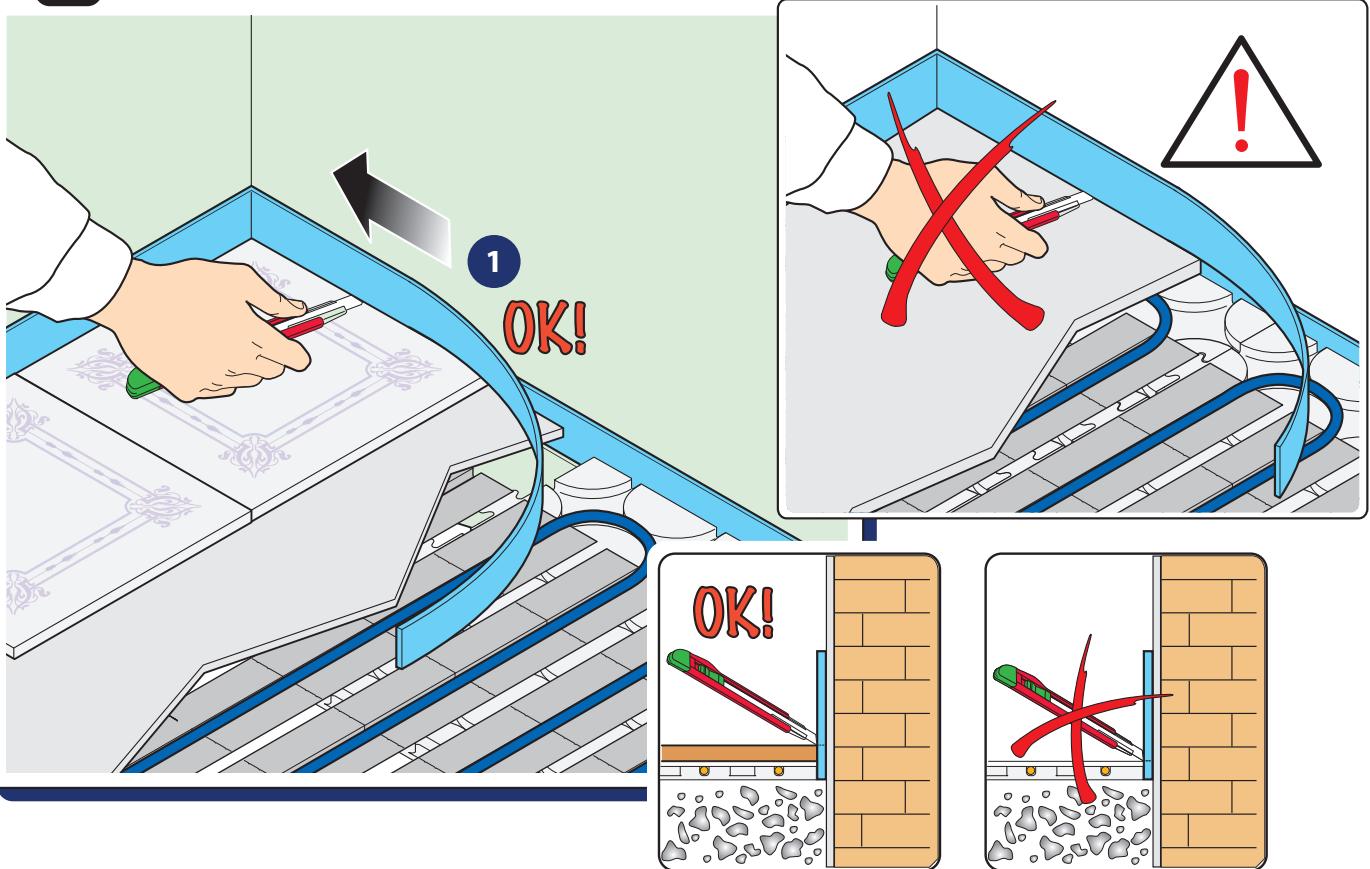
In case of ceramic or wooden flooring please contact RDZ Technical Department.

ALTRI RIVESTIMENTI

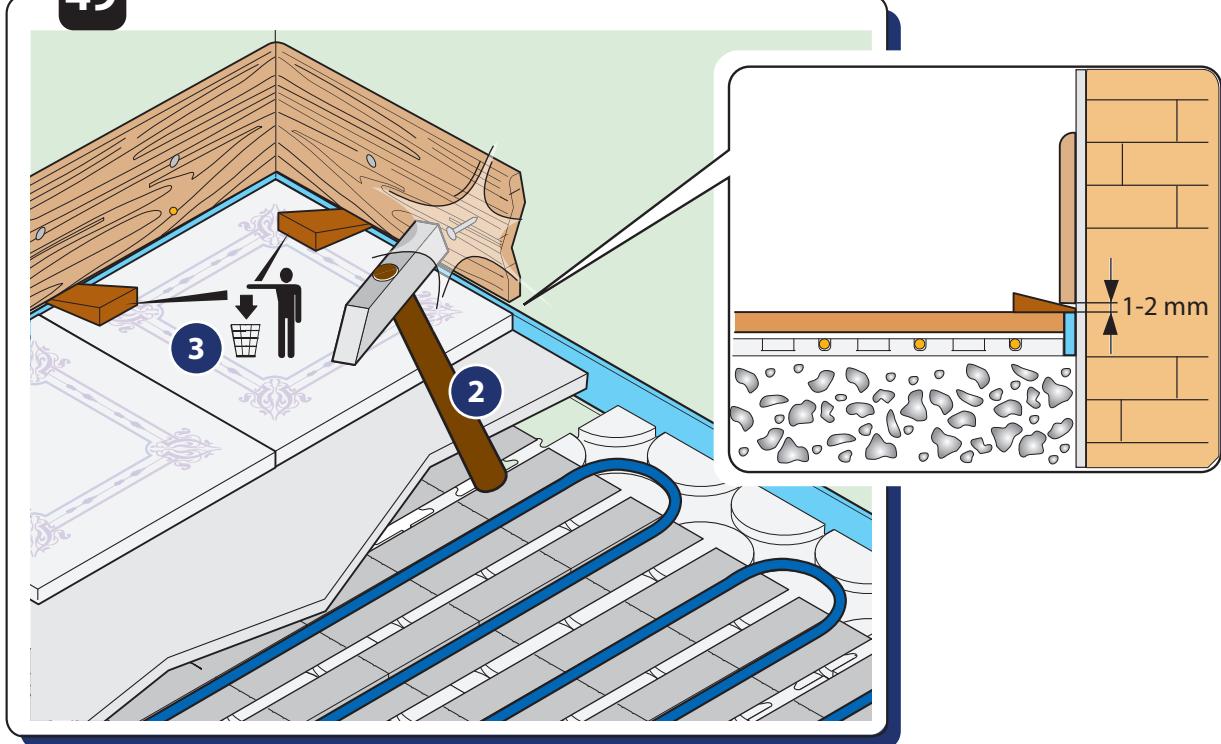
Per la posa di rivestimenti diversi dai ceramici o lignei contattare l'ufficio tecnico RDZ.

3.10 | INSTALLATION OF THE SKIRTING BOARD - POSA DEL BATTISCOPA

48



49



**Fix the skirting board to the walls only, do not fix it to the floor!
otherwise the flooring can get broken!**

**Fissare il battiscopa unicamente alle pareti, non ancorarlo
alla pavimentazione!
Pericolo di rottura del rivestimento!**

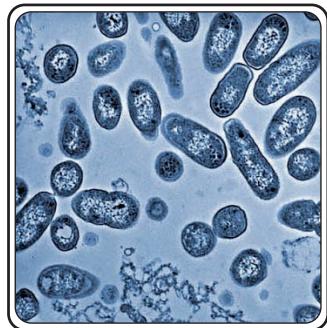
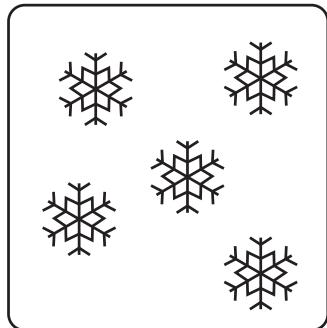
3.11 | ADVICE FOR USE - CONSIGLI DI UTILIZZO

The system shall be switched on to reach the project temperature gradually.

The first activation starts with water at 20°C -25°C, which shall be gradually increased with 3°C a day until the maximum set temperature has been reached.

L'impianto va avviato e portato alla temperatura di progetto con gradualità.

Il primo avviamento comincia con il fluido ad una temperatura compresa tra i 20°C-25°C per essere gradatamente aumentata nel periodo successivo di 3°C al giorno fino al raggiungimento della massima temperatura prevista.





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01/2018



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