nora® INSTALLATION GUIDE

nora® by Interface®

Contents

General Installation Guidelines

All nora® flooring is to be installed by nora® Approved Installers, or INSTALL (International Standards & Training Alliance) resilient certified installers for the specific requirements of the project. This nora® Installation Guide covers the typical projects and circumstances where nora rubber flooring is to be installed. If you need assistance, please contact the nora® Technical Department at 1-800-332-NORA. The procedures and recommendations described in this installation guide are developed to provide the best opportunity for a successful nora flooring installation. Any deviation from these guidelines may result in an installation failure.

All appropriate Safety Data Sheets (SDS) and this installation guide must be read, and fully understood prior to installing any nora product. For all nora® nTx installations, please refer to the nora® nTx Installation Guide. All of this information including installation and maintenance videos, and how to become a nora Approved Installer is available on www.nora.com/us.

All nora products are intended for appropriate indoor use only, in high stress commercial and industrial sectors (e.g., hospitals, schools, labs, rail, radiant heating and caster chair traffic). nora flooring must be installed using nora adhesives. The use of any other manufacturers adhesive is not permitted and will void the warranty. It is the responsibility of the installer to determine the suitability of the substrate being covered.

Unless otherwise stated, follow the specific requirements of *ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring*. For copies of any of the ASTM standards, practices or test methods, please visit www.astm.org.

The prepared substrate must be smooth and ridge free. Use an appropriate patching compound or self-leveling underlayment following the manufacturer's instructions. Patching or underlayment compounds must be moisture, mildew, and alkali-resistant. The compounds must provide a minimum of 3000 psi compressive strength when tested in accordance with *ASTM C109/C109M Standard Test Method for Compressive Strength of Hydraulic Cement Mortars - Using 2-in or 50mm Cube Specimens* or *ASTM C472 Standard Test Method for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete*. Warranties should be obtained from the manufacturer of the installed product.

Any specific requirement for level or flatness must be agreed upon by the owner, end-user, general contractor, and flooring contractor prior to the flooring installation.

Note: Tile "run off" may occur if the substrate is not flat.

Moisture testing as per *ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes* is mandatory.

A water droplet test for absorbency of the concrete or cementitious substrate is always recommended when using nora® AC 100 or ED 120 adhesive.

Mat Bond tests are required. This test determines the compatibility of the nora flooring with the substrate, and may provide an indication of the presence of excessive moisture or other contaminates.

Warning

Do not sand, dry sweep, dry scrape, drill, saw, shot-blast, mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphalt "cutback" adhesive or other adhesive. These products may contain asbestos fibers and/or crystalline silica. Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard. Unless positively certain that the product is a non-asbestos containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content. Various local, state and federal government agencies have regulations governing the removal of in-place asbestos-containing material. If you contemplate

the removal of a resilient floor covering structure that contains (or is presumed to contain) asbestos, you must review and comply with all applicable local, state and federal regulations. The RFCI's (Resilient Floor Covering Institute) "Recommended Work Practices for Removal of Resilient Floor Coverings" is a defined set of instructions that addresses the task of removing all resilient floor-covering structures, including adhesive and adhesive residues. For more information, contact RFCI directly at www.rfci.com or 706-882-3833.

Occupational Safety and Health Administration (OSHA) has amended its existing standards for occupational exposure to respirable crystalline silica. OSHA has determined that employees exposed to respirable crystalline silica at the previous permissible exposure limits, face a significant risk of material impairment to their health. For more information go to https://www.osha.gov/silica/

Conditioning

The flooring, adhesives, and accessories must be acclimated in the recommended environmental conditions for at least 48 hours prior to installation. Areas of the flooring subjected to direct sunlight, for example through doors or windows, must be covered using blinds, curtains, cardboard or similar materials for 24 hours before, during, and for a period of 72 hours after the installation to allow nora "wet" adhesives to cure.

The installation area must be fully enclosed, weather tight, and climate controlled between 63°F and 75°F and 40% to 60% ambient relative humidity (RH) for at least 48 hours prior, during and 72 hours after installation (do not use gas fueled blowers). If this is not possible, contact the nora Technical Department.

Avoid conditions where dew point allows for the condensing of moisture on concrete substrates. The substrate must be at least 5°F above dew point to be considered acceptable.

Example: If the ambient conditions are 70°F and 65% RH, the dew point is 57°F, you must not proceed with the installation. The surface temperature must be a minimum of 62°F. Dew point calculation charts are available on the internet.

Adhesive Limits

The maximum allowable internal slab relative humidity levels (with an effective vapor retarder as required) are as follows:

nora® AC 100, ED 120, PU 102 and dryfix 750 adhesives = 85% RH

nora® stepfix and profix tape adhesives = 75% RH

If the moisture test results exceed the maximum allowed then the installation must not proceed until either the moisture content drops to an acceptable level or an effective moisture mitigation system is used that conforms to *ASTM F3010 Standard Practice for Two-Component Resin Based Membrane Forming Moisture Mitigation Systems for use Under Resilient Floor Coverings*, and installed following that manufacturers written instructions.

Moisture Testing

Moisture testing is required on all concrete slabs prior to installation. Test the slab with a testing apparatus that conforms with *ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Slabs Using in situ Probes*. If for any reason you are unable to drill into the concrete, please contact the nora Technical Department.

Water Droplet Test

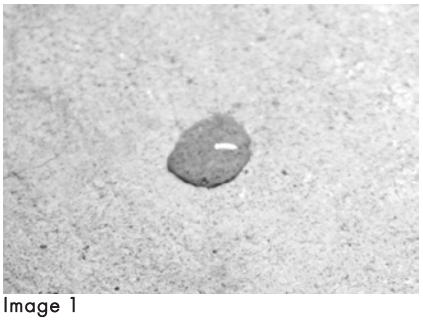

Image 1

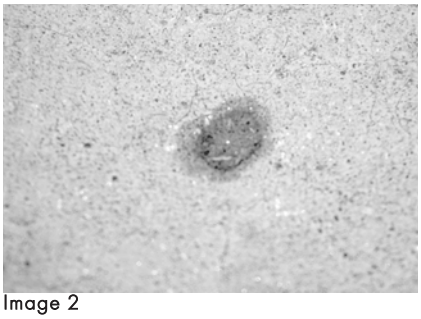

Image 2

When using nora AC 100 or ED 120 adhesives it is mandatory that the substrate be absorptive as detailed within ASTM F710. To confirm this, the installer must perform a water droplet test in a sufficient number of places throughout the project. To perform the test, place a 1/4 inch size drop of water (image 1) on the substrate surface using a water dropper after the substrate surface has been prepared as planned. The water must begin to absorb ≤ 5 minutes to be considered absorptive (image 2).

Absorptiveness affects the drying time within a concrete substrate, expected open and working time of the adhesive. The adhesive open-time will decrease on porous substrates, and areas subjected to air flow such as in the vicinity of open doors or windows. It is the installer's responsibility to understand the working characteristics of the adhesive in all areas of the project and to make any necessary adjustments in preparation or installation techniques to achieve a secure bond.

Mat Bond Test

Mat Bond tests are necessary to determine the compatibility of the flooring system to a variety of substrates and may provide an indication of the presence of moisture. It is the responsibility of the installer to determine the suitability of the substrate being covered and how many Mat Bond tests need to be performed.

The specified adhesive should have been determined based on the space operations, type of nora flooring and existing substrate. In the event of a failed bond test, contact your nora® Sales Representative for adhesive recommendations.

The areas and products to be tested must be properly conditioned for 48 hours before and during the testing period. The responsible party must ensure that the tests are conducted only at a time when substrate and job site conditions comply with those requirements which are outlined in this installation guide and *ASTM F710*.

Note: There are several factors that can influence the outcome of a bond test; therefore it is important to follow this protocol.

Install the bond tests using the specified adhesive in accordance with the nora installation instructions. Do not uplift to check for adhesive transfer after flooring placement. Use Duct tape or similar to seal the edges of the flooring test sample to the substrate on all sides. Protect the flooring from foot traffic for 12 hours and rolling traffic for the duration of the test, which must be a minimum 3 days (72 hours). Place tests at appropriate locations near walls or in light traffic areas. It is recommended that each test plot should be 2 ft. x 2 ft.

To evaluate the adhesives, the tests must be physically peeled by hand. The success or failure is determined by the test administrator's visual interpretation and the amount of physical effort required when removing the floor covering.

- nora AC 100 or ED 120 – Cut a two-inch wide strip from the center of the test sample, and then slowly peel up from one end. Wet or soft indicates the substrate is either still too wet, or the surface of the concrete is non-absorptive. Typically the point of failure should occur cohesively; there should be approximately the same amount of adhesive on both the substrate and the back of the flooring. If the

majority of the adhesive is on the material backing, there is either insufficient mechanical preparation or a contaminant on the substrate or the substrate has too much moisture. If the majority of the adhesive remains on the substrate, the adhesive dried too much before placement, or the result of insufficient rolling. If the failure occurs within other components of the flooring system, there may be a problem with those components, preparation or application method. If the flooring requires a great deal of effort to pull up, for example where it cannot be removed intact, the bond test can be considered successful providing no sign of moisture is found.

- nora PU 102 - Cut a two inch wide strip from the center of the test sample, and slowly peel up from one end. The point of failure should be between the adhesive and either the substrate or the back of the flooring. If the flooring requires a great deal of effort to pull up, for example where it cannot be removed intact, the bond test can be considered successful providing no sign of moisture is found.
- nora dryfix 750 - Mat Bond tests are not expected to have the equivalent peel strength of the wet adhesives. Bond tests must be placed in a trafficked area. The nora dryfix 750 still bonded to the back of the flooring with a small amount of adhesive residue transferred to the substrate can be considered a successful bond test providing no sign of moisture is found.

The primary goal when evaluating this test is to ensure that the nora dryfix 750 is compatible with the substrate.

If the prepared substrate fails easily then the preparation protocol and products should be evaluated and corrected prior to re-doing the Mat Bond testing.

Substrate Preparation

CONCRETE SUBSTRATES

For new construction, the General Contractor must provide a structurally sound concrete substrate that conforms to *ASTM C33/C33M Standard Specification for Concrete Aggregates*. Concrete substrates must not be subject to shrinking, curling, cracking or moving in any way prior to the application of any nora products. nora systems, Inc. accepts no liability for a failure or complaint due to slab movement of any kind. nora products must not be installed over expansion joints; use an industry standard expansion joint assembly.

When concrete slabs have or are suspected of having ASR (Alkali Silica Reaction) present, do not proceed; contact the nora Technical Department.

Do not use any nora product where hydrostatic pressure can occur.

All on and below-grade concrete substrates require a confirmed permanently effective vapor retarder with a low permeance (≤ 0.10) having a minimum thickness of 10 mils, and meets the current requirements of *ASTM E1745 Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs*. It must also be placed directly underneath the concrete, above the granular fill or use an effective moisture mitigation system that conforms to *ASTM F3010 Standard Practice for Two-Component Resin Based Membrane Forming Moisture Mitigation Systems for use Under Resilient Floor Coverings*.

All concrete substrates must be absorptive (see water droplet test), permanently dry (see moisture testing), clean, smooth and structurally sound as per *ASTM F710*. In addition, concrete substrates must be free of dust, solvents, paint, wax, varnish, oil, grease, asphalt, old adhesives and other extraneous materials that may interfere with the bond. Use only mechanical means like diamond grinding with a Diamabrush™ Concrete Prep Plus Tool (or similar), or shot blasting. When using mechanical abrasion equipment ensure that it is equipped with an effective dust shroud and vacuum with Hepa filter. Refer to the Warning section of this installation guide for further instructions regarding the control of airborne particulates such as dust or other substances.

Note: The use of a water based sweeping compound is acceptable. No wax or oil based.

When using a patching or leveling compound over non-absorptive substrates first check suitability with Mat Bond testing. To be considered absorptive (for nora AC 100 and ED 120 adhesives) they must be at least 1/8 inch thick, and installed following the manufacturer's instructions.

Note: When mechanical sanding of the compound is required certain compounds may become denser and the surface porosity may be diminished. A water droplet test is recommended to determine the state of porosity (see water droplet test).

Surface cracks, grooves, depressions, control joints or other non-moving joints, and other irregularities must be filled or smoothed with patching or underlayment compound for filling or smoothing. Patching or underlayment compound must be moisture, mildew, and alkali-resistant. The compounds must provide a minimum of 3000 psi compressive strength. Mechanically remove all laitance, dirt, debris, and coatings from the fill area. Use a suitable dustless concrete saw with a diamond blade or similar. Do not install over any moving cracks or joints. If the concrete moisture level is too high contact the nora Technical Department and the moisture mitigation system manufacturer. Use products and methods as directed by the nora Technical Department and the moisture mitigation system manufacturer.

Expansion and moving joints must not be covered with any nora product. Use a suitable industry standard expansion joint assembly system. In the event of moving cracks or joints please contact the nora Technical Department for recommendations.

WOOD SUBSTRATES

All wood substrates must be a total minimum thickness of 1-1/4 inch and overlaid with overlapping joints using APA (American Plywood Association) or EWA (Engineered Wood Association) plywood, single ply construction with fully sanded face grade A or B, or using APA/EWA underlayment grade. Wood panels must be a minimum of ¼ inch thick.

All wood substrates must conform and be installed in accordance with *ASTM F1482 Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring.*

Wooden substrates must not be in direct contact with concrete substrates, even if built on sleepers. All suspended wood floors must have adequate under floor ventilation and a permanently effective vapor retarder or membrane placed directly on the ground beneath the air space. Do not install over any oriented strand board (OSB), particleboard, Masonite, lauan, fire retardant treated plywood, or any similar unstable substrates.

The plywood must be clean, and free of any bond breaking contaminates, this can be achieved by sanding or replacing the plywood with new APA/EWA plywood. Any gaps or voids must be filled and smoothed with a flexible joint filler. Any ridges must be sanded smooth.

GALVANIZED/STAINLESS STEEL AND ALUMINUM SUBSTRATES

Abrade the existing galvanized/stainless steel or aluminum by using mechanical systems (i.e. disk sander with 40-grit sandpaper). Clean the galvanized/stainless steel, or aluminum by sweeping and then wiping with 70% Isopropyl alcohol. Perform a Mat Bond test with the appropriate adhesive as described in this nora Installation Guide.

REGULAR STEEL SUBSTRATES

All rust must be removed by sand blasting or other mechanical methods. To prevent the steel from rusting again, nora nTx 020 bond enhancer must be applied to the steel substrate. Perform a mat bond test with the appropriate adhesive as described in this nora Installation Guide. Any questions, please contact the nora Technical Department.

OVER EXISTING FLOOR COVERINGS

nora flooring can be installed over existing smooth finished, non-cushioned backed and securely bonded floor coverings (e.g. VCT, natural rubber, linoleum, PVC.) The existing flooring must not have any voids that could telegraph through the nora flooring. nora flooring can also be installed over properly prepared terrazzo, ceramic and quarry tile floors.

The responsibility for determining if the currently installed resilient flooring is well-bonded to the substrate and that any texture or embossment will not telegraph through the new installation rests with the owner, general contractor and flooring contractor.

Note: Installations over existing resilient flooring may be more susceptible to indentations.

To fill voids or surface irregularities, use a patching compound that is suitable for bonding to existing floor coverings. Sand the surface to a smooth finish as needed. A primer may be required so it is important to check with the patch manufacturer for specific mixing and installation instructions. Any product warranties or performance guarantees are the responsibility of the selected manufacturer.

nora® dryfix 750 Tape

If used over existing flooring, nora systems, Inc. accepts no liability for any failure due to other manufacturer's flooring products or the possible breakdown of that flooring bond from the substrate for any reason. Providing both the moisture test and Mat Bond test have acceptable results then the installation may continue.

Note: Do not install over any existing cushion backed resilient flooring.

The nora dryfix 750 tape must be installed prior to dry fitting the flooring materials. Carefully vacuum the installation area to remove all loose debris, and back trowel the substrate to ensure complete removal or debris

Image 1

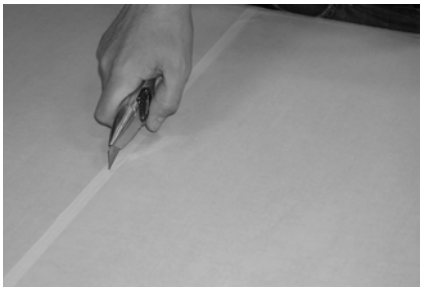

Image 2

Unroll the nora dryfix 750 tape into position (image 1). Overlap all seams by at least 1/2 inch and lightly press into place using a steel trowel, stiff bristle broom or similar. Allow a minimum of 15 minutes before cutting seams. If the tape stretched during the installation process it will return to its original size.

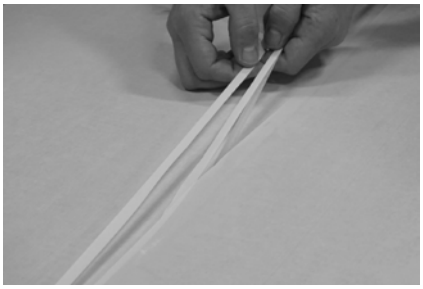

Image 3

Double cut all seams without damaging the substrate (image 2), then pull away the excess nora dryfix 750 and wax paper adding tension to the wax paper instead of folding over itself (image 3). If you allow the wax paper to fold over it will break making removing the waste material difficult. If any trash or debris is trapped underneath the tape, remove and replace that section of nora dryfix 750.

Alternatively, nora dryfix 750 can be trace cut on substrates where the nora dryfix 750 aggressively bonds. Overlap all seams by at least ½ inch and lightly press into place using a steel trowel, stiff bristle broom or similar. Next, using a straight edge, align the straight edge against the edge of the bottom sheet of nora dryfix 750. Cut the overlapping edge off following the straight edge using a sharp straight blade utility knife.

Do not use chalk directly on the nora dryfix 750. Lay out lines using a pencil then chalk lines can be placed on the surface of the wax paper thus avoiding contaminating the nora dryfix 750.

Dry lay the flooring as detailed in the tile and sheet installation sections of this guide. Uplift half the area and vacuum the back of the flooring along with the surface of the wax paper. Next, remove the protective wax paper, fold or roll the wax paper for ease of disposal, leave approximately 4 inches and fold the wax paper under the flooring to prevent debris from falling on the exposed nora dryfix 750. Replace flooring onto the exposed tape, do not stand on the flooring until you are sure of correct positioning, it is still possible to reposition it. Use a 100 – 150 three section roller to remove any air bubbles and ensure a good bond.

Installation

The material layout should be decided by the architect, designer and end user; however, nora generally recommends that tiles are installed point to point (corner to corner). The tiles and sheet flooring have arrows on the backside and these should always be pointed in the same direction. The exceptions being norament® arago and noraplan® valua planks, which can be installed in multiple ways.

TILE

After the area is prepared, locate your center and start lines using the 3/4/5 method or a carpenter's square. Balance the layout and use a pencil to mark your starting lines. Dry-lay the flooring tiles without adhesive following the design layout. Begin installing from the center of the room following the start lines in both directions, including end cuts but without stress (pressure fitting). Determine a workable section of the installation area. Remove and stack tiles in reverse order. This method ensures correct placement of the tile without exceeding the open time of the adhesive.

SHEET

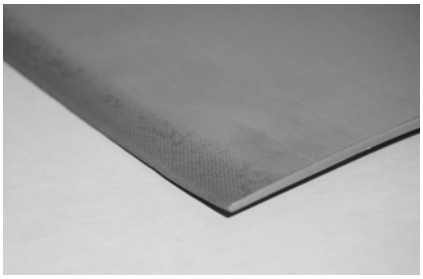

Image 1

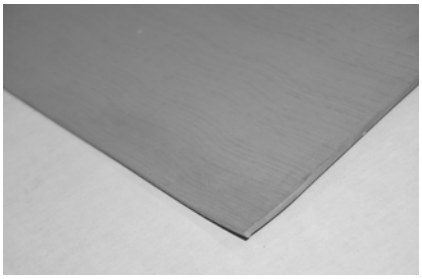

Image 2

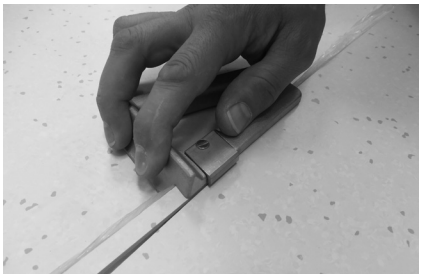

Image 3

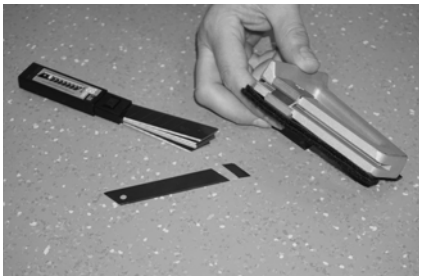

Image 4

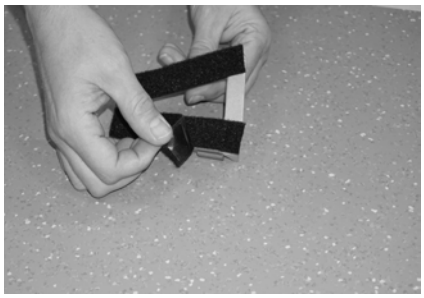

Image 5

Image 6

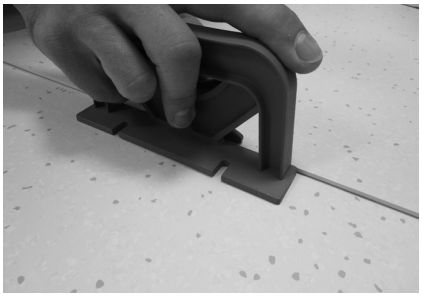

Image 7

Seams are prepared using the edge trim and trace cut method. Sheet flooring will have two types of selvage edges, a tapered edge (image 1) and a factory cut edge (image 2). The factory cut edge must be trimmed. The tapered edge does not require trimming.

Note: It can be possible to have both selvage edges factory trimmed without a tapered edge on the flooring. This must be identified prior to starting the installation. If the tapered edge does not exist, either edge can be used for edge trimming.

Remove the factory trimmed edge using a Crain 340 selvage trimmer or similar and trim off ~ 0.5 inches (image 3). Use breakaway blades in the trimmer to make cleaner cuts (image 4). Velcro must be added to the underside of the trimmer to avoid marking the flooring. A second layer is required under the blade side to give the trimmer the correct angle required for unwelded seams (Image 5).

Dry-lay the sheet flooring with all arrows on the back facing the same direction and overlapping all seams. Do not reverse sheets. Trim or cut down sheets and fit to the walls. The trimmed sheets will overlap the untrimmed edges and measure a maximum of 48 inches to the next trimmed edge. Make relief cuts as required so the sheets lay flat and to avoid tears.

Using a nora® knife with a straight utility blade set to the thickness of the flooring (image 6), carefully trace cut the entire seam (image 7). A utility knife (used vertically) with the same type of straight blade is needed to finish the cut at each end of the seam at the walls. Seams can also be cut in a larger area prior to bringing flooring into the installation area.

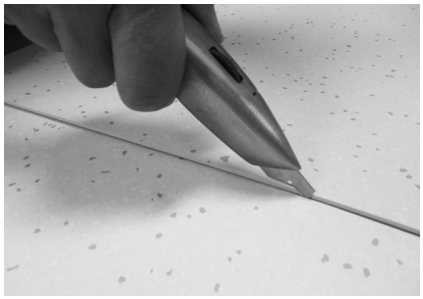

Image 8

This will avoid hand cutting at walls and result in a clean even seam. Finish cutting the seam using a hook blade utility knife to provide a very slight undercut (image 8). Carefully remove the excess material. Finish dimension on the width should be 48 inches after seam cutting. Continue this process one sheet at a time until the area is completed

Note: Underscribe tools are not recommended for seam cutting.

ESD Flooring (ed Products)

For ESD flooring installations, nora copper tape must be used with nora ED 120. In rooms < 2,500 square feet in size, the copper strip (minimum 4 feet long) with 2 feet remaining under the flooring must be applied to the substrate, and extended to a pre-determined grounding point. All areas not in direct contact with the surrounding flooring and adhesive will require additional copper tape. In rooms > 2,500 square feet, additional grounding points must be pre-defined and also have the copper tape installed.

Note: Please contact the nora Technical Department for detailed instructions showing the correct placement and installation of the copper tape. The grounding point connection must be connected by a qualified electrician.

nora® AC 100 Adhesive

The nora AC 100 is a water-based acrylic adhesive formulated for the installation of nora rubber floor coverings (2 mm – 4 mm) on absorptive substrates.

Note: Not recommended for use in areas with heavy point loading (e.g. operating rooms, cGMP).

Fold back a workable section of the flooring (normally half of the area). Clean the substrate and the back of the flooring.

For 2 mm flooring, apply the adhesive using a 1/32inch x 1/16 inch x 1/32 inch U-notched trowel. Coverage is ~ 510 – 570 square feet per 3 gallon pail for a (concrete surface profile) CSP 1 

For 2.7 to 4 mm flooring, apply the adhesive using a 1/16 inch x 1/16 inch x 1/16 inch V-notched trowel. Coverage is ~ 420 – 480 square feet per 3 gallon pail for a (concrete surface profile) CSP 1 

The adhesive should be applied evenly without the formation of puddles or voids. Do not apply fresh adhesive over drying adhesive as this will result in telegraphing of adhesive lines. Replace worn trowels to ensure consistent spread rate. Do not re-notch.

Once troweled, the adhesive open time will depend upon the ambient temperature and humidity, substrate absorptiveness and air flow. The adhesive must remain wet and have full transfer to the back of the flooring; the average open time is ~15 to 25 minutes. To confirm when the adhesive is ready to install, touch the adhesive with your finger, the adhesive should transfer to your finger without smearing the adhesive ridges. When the adhesive has developed body and does not easily smear, replace the flooring. If the adhesive is too dry, remove and replace it. Do not uplift the flooring to check for adhesive transfer after placement.

Note: A Mat Bond test prior to beginning the installation is recommended to determine both the appropriate open and working time of the adhesive.

Carefully replace the flooring back into position then slowly roll in both directions utilizing a 100-150 lb. three-section roller. Re-roll again in both directions after ~ 30 minutes. Repeat the process for the second half of the area, and then for all remaining areas.

Remove any fresh adhesive from the surface of the flooring with water and a clean cloth. Dried adhesive may be removed using 70% Isopropyl alcohol and a clean cloth. Do not wash or perform any maintenance of the floor for a minimum of 72 hours post installation to allow adhesive to cure. Refer to the appropriate SDS for any disposal.

nora® ED 120 Adhesive

The nora ED 120 is a water-based acrylic conductive adhesive formulated for the installation of nora ED rubber floor coverings (2 mm – 3.5 mm) on absorptive substrates.

Note: Not recommended for use in areas with heavy point loading (e.g. operating rooms, cGMP).

Fold back a workable section of the flooring (normally half of the area). Clean the substrate and the back of the flooring.

Apply the adhesive using a 1/16 inch x 1/16 inch x 1/16 inch Square-notched trowel evenly without the formation of puddles or voids. Do not apply fresh adhesive over drying adhesive as this will result in telegraphing of adhesive lines. Coverage is ~ 480 –540 square feet per 3 gallon pail for a (concrete surface profile) CSP 1. Replace worn trowels to ensure consistent spread rate. Do not re-notch.

Once troweled, the adhesive open time will depend upon the ambient temperature and humidity, substrate absorptiveness and air flow. The adhesive must remain wet and have full transfer to the back of the flooring; the average open time is ~5 to 15 minutes. To confirm when the adhesive is ready to install, touch the adhesive with your finger, the adhesive should transfer to your finger without smearing the adhesive ridges. When the adhesive has developed body and does not easily smear, replace the flooring. If the adhesive is too dry, remove and replace it. Do not uplift the flooring to check for adhesive transfer after placement.

Note: A Mat Bond test prior to beginning the installation is recommended to determine both the appropriate open and working time of the adhesive.

Carefully replace the flooring back into position then slowly roll in both directions utilizing a 100-150 lb. three-section roller. Re-roll again in both directions after ~ 30 minutes. Repeat the process for the second half of the area, and then for all remaining areas.

Remove any fresh adhesive from the surface of the flooring with water and a clean cloth. Dried adhesive may be removed using 70% Isopropyl alcohol and a clean cloth. Do not wash or perform any maintenance of the floor for a minimum of 72 hours post installation to allow adhesive to cure. Refer to the appropriate SDS for any disposal.

nora® PU 102 Adhesive

The nora PU 102 is a two-component polyurethane (PU) adhesive that has been formulated for the installation of norament tiles. When parts A and B are thoroughly mixed together, they form a reactive adhesive that cures to a tough, flexible film with a good resistance to surface moisture and many chemicals.

Note: This adhesive is not for use with noraplan products.

Add all of part B to part A and mix until homogenous (without streaks), using a slow speed drill (<150 rpm), fitted with a suitable mixing spindle ~ 3 inches in diameter. Note: Do not partial mix units.

Remove a workable section of the flooring. Clean the substrate, and the back of the flooring. Apply the adhesive using a 1/32 inch x 1/16 inch x 1/32 inch U-notched trowel, evenly without the formation of puddles or any voids. Do not apply fresh adhesive over drying adhesive, as this will result in telegraphing of adhesive lines. Coverage is ~ 170 – 190 square feet per gallon for a CSP 1. Replace worn trowels to ensure consistent spread rate, do not re-notch. 

Once troweled, the adhesive open time will depend upon the ambient temperature and humidity, substrate absorptiveness and air flow.

Note: All slick or burnished concrete should be abraded to create a mechanical key.

While it is possible to lay the flooring into the adhesive after 15 minutes (may be preferred for small areas), it is recommended to allow the adhesive to begin to tack up (sticky when touched lightly with your fingertip) as this will help prevent the flooring from sliding on the wet adhesive and the adhesive bleeding through the seams. Note: It is better to wait than spend the same amount of time cleaning up the adhesive. The open time will be 20 to 45 minutes depending on the site conditions.

Carefully replace the flooring back into position and slowly roll in both directions utilizing a 100-150 lb. three-section roller. Re-roll again in both directions after ~ 60 minutes. If tiles begin to lift or bubbles appear, place weights on any lifting edges or corners to ensure proper bonding. Repeat the process for the second half of the area and then for all remaining areas.

Immediately remove any adhesive from the surface of the flooring using 70% Isopropyl alcohol and a clean cloth. Cured PU adhesive cannot be removed without damaging the flooring. Do not wash or perform any maintenance for a minimum of 72 hours post installation to allow adhesive to cure.

Mix and allow the product to harden in open container outside. When fully cured and cooled then dispose of as construction waste, refer to the appropriate SDS.

Precaution

Prevent all traffic for a minimum of 12 hours and rolling loads for 72 hours. If required, after 12 hours protect the flooring using plywood or Masonite, ensuring first that the flooring surface is free of all debris. Lay the panels so that the edges form a butt joint, and tape the joint to prevent movement and debris entrapment underneath them.

Flash Coving (Boot Method)

At the intersection between the wall and substrate, all gaps and voids should be smoothed with a suitable filler before installation. Ensure that the wall is dry, smooth and clean. If dusty then prime using a suitable water based primer, applied with a small roller or paint brush.

Install any required cove cap strip following the manufacturer's instructions. Ensure that the opening is sufficient to accommodate the thickness of the flooring material.

Install the appropriate size nora® profix tape (90 for 4 inch or 145 for 6 inch) to the wall keeping it close to the substrate.

Cut the cove stick to size and miter all corners, then remove the bottom 1 inch of wax paper from the nora profix, and adhere the cove stick to the wall (no need to adhere it to the substrate).

Dry-lay slightly longer than required lengths of flooring as detailed within the nora Installation Guide for sheets making relief cuts to avoid tears at all external corners.

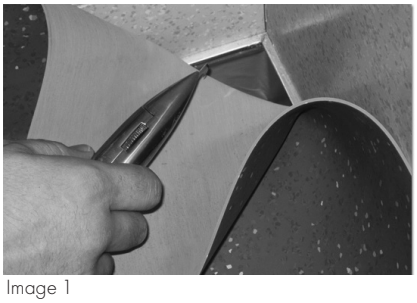
Image 1

Push the flooring into the internal corner as far as possible without damaging the flooring. Cut a straight line in the flooring from the fold to the top edge of the flooring at a 45° angle (image 1). Cut all the external corners using the Boot Method. Do not trim the perimeter or internal corners until the field flooring is adhered.

Note: Installation videos are available on www.nora.com/us.

EXTERNAL CORNERS

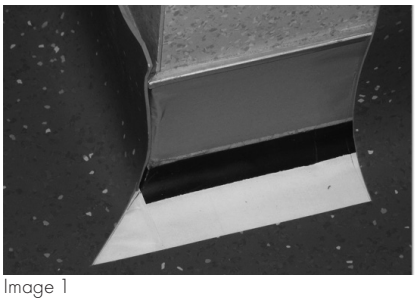
Image 1

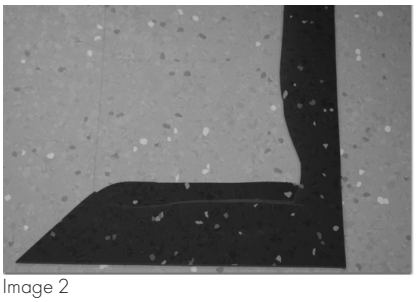
Image 2

Using a pencil and small straight edge, mark the flooring where the cuts are required for each boot. Begin at the outside corner at the top of the cove stick and draw a line at a 45° angle to form the toe of the boot, then ~ 2 inch perpendicular to the wall, and then complete the boot up the vertical. Using a small straight edge and a straight blade utility knife, accurately cut and remove the excess flooring (in one piece) from the external corner following your pencil marks (image 1). Keep the excess for use as a template (image 2).

Note: Butterfly corners are not acceptable with nora products.

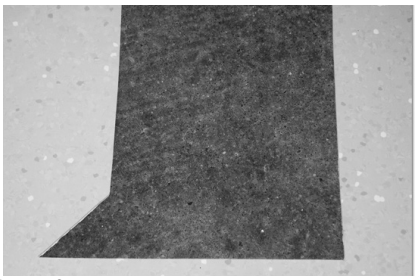
Image 3

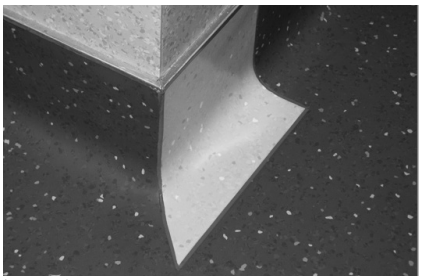
Image 4

Trace and cut the removed section onto a new piece of flooring. The front edge must be left long enough to cover the exposed wall surface. The excess will be trimmed after installation to be flush with the wall corner (images 3 and 4).

INTERNAL CORNERS

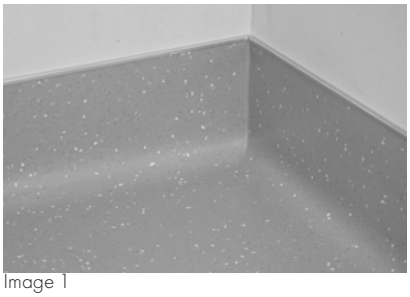
Image 1

Place one side into position and trim off the excess material, resulting in a straight cut down the center of the corner and extend past the base of the nora cove stick. Repeat the process with the second side. A slight gap is acceptable as all internal seams are to be cold welded (image 1).

WALLS

Carefully fold back the flooring as not to crease or tear it. Remove the wax paper from the nora profix, and keeping the floor tight to the cove stick, push into the tape. Trim the flooring to fit the cap strip and insert. Finish walls by hand rolling.

BOOT

Carefully remove the wax paper from the nora profix and place the "boot" (external corner) into the tape; press and roll firmly into place. Trim the boot to fit the cap strip and insert. Trim the vertical edge of the flooring using a small straight edge. The end result will be a clean, straight edge that is flush with the wall and ready to be cold welded. All external seams must be cold welded.

Note: A video of this process is available on www.nora.com/us.

Sanitary Base

At the intersection between the wall and substrate any gap cannot be more than ~ 1/2 inch. If a larger gap exists, fill and smooth the gap using a suitable filler. Ensure that the wall is dry, smooth and clean. If dusty prime using nora 020. Apply using a small roller or paint brush.


Image 1

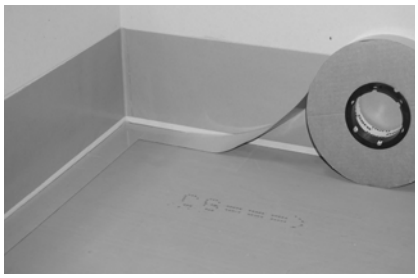
Image 2

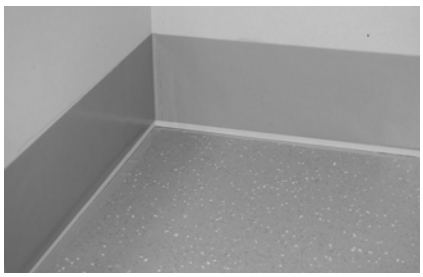
Image 3


Image 4

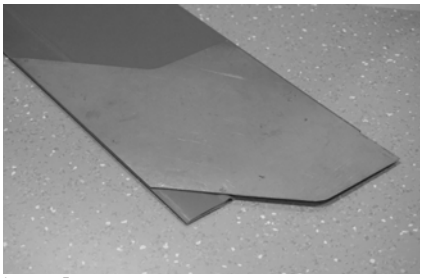
Image 5

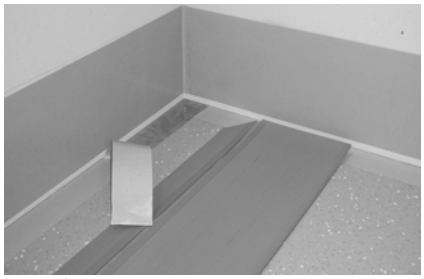
Image 6


Image 7

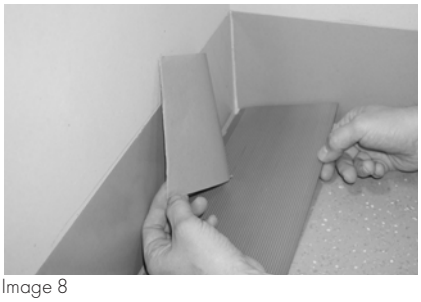
Image 8

Using nora profix 145 tape, leave the wax paper on the sides of the roll and place the roll on the cardboard disk (supplied). The disk will help keep the tape at the correct height when applying it to the wall. Install nora profix 145 tape directly to the wall (~ 1/4 inch from the floor), pressing firmly into place (image 1). Then install nora profix 50 tape directly to the floor tight to the intersection between the wall and floor, pressing firmly into place (image 2).

Install the nora flooring, ensuring that it is left large enough to cover the edge of the nora profix 50 tape following the appropriate installation section within this guide (image 3). Then when applying the correct adhesive, apply up to the nora profix 50.

Use a small section of sanitary base to mark the flooring prior to cutting (image 4). Cut back and remove the flooring at the wall where the sanitary base will be installed, using a straight edge with a sharp utility knife. Keep the line as straight as the wall will allow, a small section of nora sanitary base may be used to check suitability of the width prior to cutting.

Wipe down the backside of the sanitary base with 70% isopropyl alcohol prior to installation. Dry cut the nora sanitary base to size, miter the foot (image 5) and ensure a tight fit at all seams unless welding is specified. When welding is specified, leave an even gap between all

sections ~ 1/8 inch and when ready, follow the cold welding section within this guide. Remove the wax paper from the nora profix 50 tape on the floor and press the sanitary base firmly into place, keeping it tight to the flooring (image 6 & 7). Next, fold down the wall sections of sanitary base. Remove the wax paper from nora profix 145 tape on the wall and press firmly into place (image 8). Tap the sanitary base with a rubber mallet or roll with a rubber hand roller to ensure a good bond. Do not use metal rollers. Heat welding is not an option for sanitary base.

Wall Base

At the intersection between the wall and substrate, gaps cannot be more than ~ 1/2 inch. If a larger gap exists, fill and smooth using a suitable filler, before installation. Ensure that the wall is dry, smooth and clean.

APPLICATION

nora® wall base must be adhered using a suitable cove base adhesive and applied following the manufacturer's instructions. After cutting to fit and preparing the corners, adhere the base to the wall, and press or roll (hand roller) to obtain a strong bond. Do not stretch the wall base during installation or it may shrink back later. To help avoid possible shrinkage, slightly compress the wall base during installation.

INTERNAL CORNERS

These can be cut and tightly fit, scribed or completed in one piece by scoring the back at the wall corner, and then while folded over itself, remove a section of the toe directly under the score line, slightly less than a 45° angle.

EXTERNAL CORNERS

These must be well heated using a hot air heat gun, held in the creased position, then allowed to cool. nora systems, Inc. does not recommend shaving the back as this will weaken the corners.

Stairs

GENERAL

norament® stairtreads are designed for 80° to 90° angle straight stairs and cannot be modified on site or used on winding steps. In some cases the nosing can be formed inward toward the sanded side of the tread to ensure full contact of the nosing to the riser. The nosing will not be adhered to the riser. To determine if the angle of the stair is suitable for the norament stairtreads, use a sample piece of stair tread and confirm the nosing can be fully compressed against the riser. There should be no visible gaps between the nose of the stair tread and the nose. The radius of the stair step nosing shall be no larger than the radius of the norament stairtread (1/4 inch radius). If the radius is larger fill the void using nora® epoxy stair filler (coverage: 50 linear feet x ¼ inch bead). For wavy, damaged or bowed steps, nora® metal repair stair angle (Article 989) can be used.

For winding steps or curved steps use nora® stair nosing and standard flooring.

All stair treads with nora® visually impaired strips (VI) require the nora epoxy stair filler.

The vertical part of nosing on the stair tread or nosing is not designed to be adhered. Avoid bending or flexing norament stairtreads, especially if they have VI strips. If they are creased during transportation, contact the nora Technical Department before proceeding with the installation.

Note: Prior to installing stairtreads with a grit surface VI tape, the grit tape must be cut back an additional 1/8 inch on both ends. This allows for expansion of the grit tape once trafficked.

With steps that are wider than the stair treads (~ 6 feet) it will be necessary to join sections together. nora recommends staggered fitting (ashlar) of the cuts from one step to the next. The factory ends are cut straight and can be used for joining. The joints must be adhered using a cyanoacrylate adhesive (i.e. super glue).

CONCRETE STAIRS

All stairs must be prepared in accordance with *ASTM F 710*. If any step is damaged, rounded, uneven or out of level, then it must be repaired by an experienced underlayment contractor. nora metal repair stair angles are available and must be mechanically fastened, using the fixings supplied. Contact the nora Technical Department for specific instructions.

WOODEN STAIRS

All stairs must be permanently dry, clean, smooth, level and structurally sound. Sanding is an option to make them smooth. All nails and screws must be countersunk and filled. Loose boards and uneven or broken areas must be repaired or replaced. The front edge of the step must be straight, and match the shape of the stair tread or nosing profile.

Stair Tread Installation

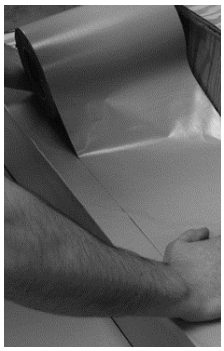

Image 1

Image 2

Apply nora® stepfix to the entire prepared staircase (images 1 and 2). The stepfix should be flush with the intersection between tread and riser for both applications of the tape, one on riser (fold over the nosing) and one on tread. If the stepfix overlaps on the tread, or you slightly crease it during installation, do not be concerned. Proceed and press firmly into place with your hand.

Installation of stair treads should begin with the bottom step. The riser portion of the top stair tread is cut off, and trimmed to fit the bottom riser. The balance of the stair tread (nosing portion) will be required later for the top landing. Do not install the leftover combined tread and nosing portion on the landing.

Continue with the bottom step working upwards; cut each stair tread to fit the width of the step. Each step should be measured across in at least three locations:

- Across the nosing.
- At the intersection between the tread and riser.
- At the top of the riser.

Trim to size using a straight blade utility knife undercutting both sides to ensure a snug fit. If required, uneven sides should be scribed in using dividers, or using a template.

To begin installation, remove the wax paper from the bottom riser, carefully press the pre-cut riser into position, and trim the excess off flush with the top of the stair nosing.

Next, remove the first 3 inches of the wax paper from the tread portion of the step and place the pre-cut stair tread into position (keep the stair tread nosing tight to the step nosing) and press firmly. A rubber mallet is helpful to fully bond the stair tread.

Next, fold the remaining section back, removing the remaining wax paper, and fully adhere the tread section.

Finally, fold down the riser section of the stair tread onto the tread and remove the wax paper from the riser. Carefully roll or push the stair tread tight into the intersection between the tread and riser of the step, then correctly position the riser and press firmly. Trim the excess flush with the nosing of the step above, and repeat the process until all of the steps are completed.

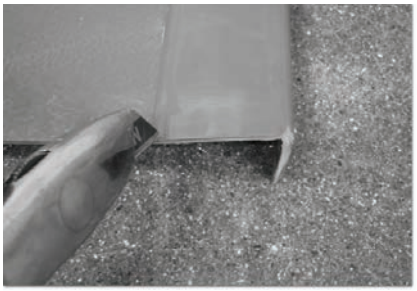

Image 3

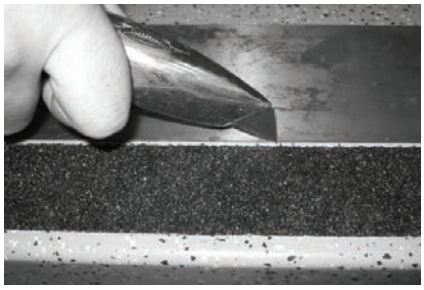

Image 4

For the top nosing, carefully cut between the nosing and tread part of the stair tread. There is a beveled area 2 inches from the front of the tread that is used to identify, cut and remove the nosing for all landing installations. Take care to cut off the nosing (at the appropriate height) so the thickness matches that of the landing flooring (image 3). Mark each end of the balance of the stair tread, and using a straight edge and straight blade utility knife, remove the nosing and discard the remaining tread (image 4).

Cut the width of the top nosing to fit. It is the responsibility of the installer to use a suitable contact adhesive, to bond the nosing, in accordance with the manufacturer's instructions for this application.

Do not use the nora stepfix to bond the top nosing.

Stair Nosing Installation

Starting at the bottom of the staircase, cut the nosing to the correct width of each step. Clean the back of the nosing using 70% Isopropyl alcohol to remove the residue. Use the nosing and mark an adhesive line on each step. Install the flooring on the bottom riser using stepfix tape. To bond the nosing, use a suitable contact adhesive in accordance with the adhesive manufacturer's instructions. Apply the contact adhesive to both the nose of the step and the underside of the rubber nosing. After the appropriate open time install the rubber nosing keeping it tight to the staircase nose. Tap into place using a rubber mallet to ensure a good bond. The tread sections can be adhered using step fix or nora dryfix 750 tape.

Continue repeating this process up the staircase, installing treads, risers and rubber nosings until the staircase is complete.

Heat Welding

After installation with wet adhesives wait a minimum of 12 hours before heat welding. If nora dryfix 750 tape or nora nTx flooring was used, welding can be performed immediately. Heat welding should not be used vertical or when welding to nora sanitary base.

Groove the seams with a mechanical joint cutter or hand-grooving tool, ensure all grooves are clean. The depth of the groove must be a minimum of 1.5 mm. For acoustic products, groove to slightly expose the backing. If the groove exposes the backing fully, cold weld must be used. The width of the groove must be ~ 1/8 inch (3 mm).

Preheat the welding gun to 662°F – 752°F (350°C – 400°C). It is recommended to practice welding on a piece of scrap flooring material first to determine the heat setting and speed, as different heat guns and cable length will affect the temperature.

Note: If the weld rod comes out during trimming, then either you welded too fast or the gun is not hot enough. The weld must melt at a lower temperature. Turning up the heat too high can burn the edges of the grooved seam. The best method is to run the heat gun slower and at a lower temperature.


Image 1

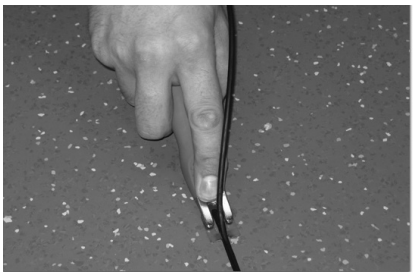
Image 2

Cut a length of nora heat weld rod sufficient to weld the entire length of the seam. Proceed to weld the seam starting at the wall and apply slight pressure to the gun nozzle (nose) to force the melting rod into the groove (image 1). The heat weld rod must have a flattened top and small bead on both sides.

Make the first cut of the weld rod warm (image 2). Use a Mozart trimming knife with the 0.7 mm spacer claw. Allow the weld rod to cool to room temperature.

Next, using only the Mozart trimming knife (without the spacer claw), finish trimming the remainder of the weld. The finished weld should be smooth and on the same plane as the floor covering.

If for any reason you still have any excess weld rod left after the final trim, it can be removed using the melting technique. To perform this, heat up a non-sharpened metal putty knife, gently push the putty knife down the seam weld. The heat gun can be held on the top of the putty knife to keep the knife warm. Excess weld material will collect on the knife.

Cold Welding

NORAMENT® (LIQUID WAX METHOD)

After installation with wet adhesives wait a minimum of 12 hours before cold welding. If nora dryfix 750 tape or nora nTx flooring was used welding can be performed immediately. nora cold weld must be used on all corners, flash coving and when required for sanitary base, or if specified.

The use of nitrile gloves is recommended when handling nora cold weld and nora® liquid wax.

To prevent bonding of the cold weld outside of the seam, using a clean cloth apply a thin even layer of nora liquid wax to both sides of the seam ~ 4 inches, and allow to dry.

Groove the required seam with a mechanical joint cutter or hand-grooving tool. Ensure all grooves are clean. The depth of the groove must be a minimum of 1.5 mm and the width of the groove must be ~ 2.5 mm.

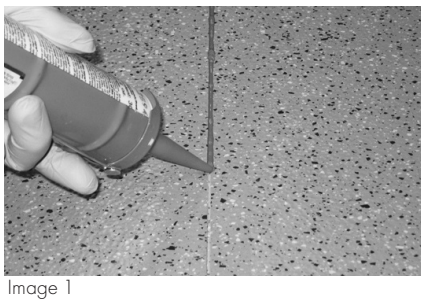
Image 1

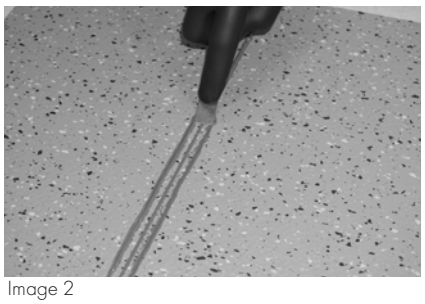
Image 2

For vertical seams, the use of a small bendable straight edge can be helpful during the trimming or grooving process.

Cut the cone tip off the tube above the threads, screw on the nozzle and place the cold weld tube into a cartridge gun.

Inject the nora cold weld into the groove without gaps until a small bulb develops above the seam about size of heat weld rod (image 1). At the end of the seam, release the gun to prevent leaks. Any nora cold weld tracked or spilled on the flooring must be removed immediately using 70% Isopropyl alcohol and a clean cloth, cleaning at a later stage may not be possible.

Press the nora cold weld into the seam using a smoothing spatula, held nearly flat (~ 20° angle), resulting in a surface flush and on the same plane as the surface of the floor (image 2). Excess cold weld must be pressed away on each side of the seam. It is important to develop a slight gap between the excess weld and the weld within the seam for easy removal once cured.

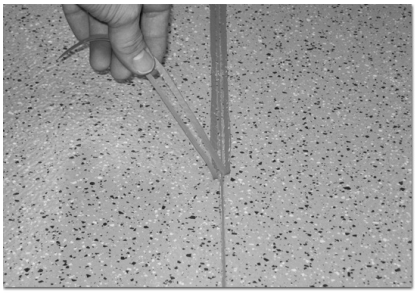
Image 3

For corners, use a smoothing spatula to remove the excess cold weld and smooth the surface to the required finish, then wait for ~ 10 minutes for the weld to skin over. Spray 70% Isopropyl alcohol onto the cold weld, and finish the weld by lightly smoothing with your finger to a smooth rounded acceptable finish.

The excess cold weld can be peeled off and removed after (~ 3 to 8 hours), depending on its thickness, ambient temperature and humidity. This can be done by simply peeling it off with your fingertips (image 3). If the cold weld is still connected anywhere, then trim it off using a sharp knife.

Prevent any traffic on the seams until the nora cold weld has cured for (~ 8 hours).

Maintenance can be performed using a wet mop after 8 hours, machine scrubbing after 24 hours and, if required, buffing floors after 72 hours.

NORAPLAN® (MASKING TAPE METHOD)

After installation with wet adhesives wait a minimum of 8 hours before cold welding. If nora dryfix 750 tape or nora nTx flooring was used welding can be performed immediately. nora cold weld must be used on all corners, flash coving and when required for sanitary base, or if specified.

To prevent bonding of the nora cold weld outside of the required seam, use masking tape (tan, not painters tape – i.e. blue or green) to completely cover the seam that requires welding. Center the tape with the seam. Use a steel hand roller to firmly press the tape down and ensure a good bond.

Groove the seam with a mechanical joint cutter or hand-grooving tool, ensure all grooves are clean. The depth of the groove must be a minimum of 1.5 mm. For acoustic flooring, groove to slightly expose the backing. The width of the groove must be ~ 2.5 mm.

For vertical seams, use a small straight edge to trim or groove the seam or sanitary base back, ~ 2.5 mm.

Carefully apply masking tape onto the surface of each side of the seam, keeping the edge of the tape flush with the edge of the flooring. Press or roll (hand roller) the tape and ensure a good bond.

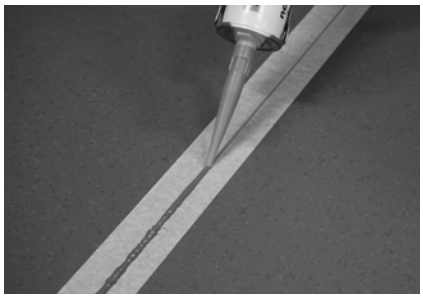
Image 1

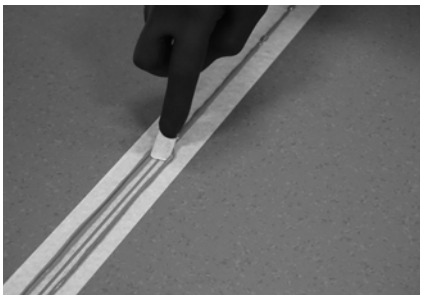
Image 2

The use of nitrile gloves is recommended when handling nora cold weld. Cut the cone tip off the tube above the threads, screw on the nozzle and place the cold weld tube into a cartridge gun.

Inject the nora cold weld into the groove without gaps until a small bulb develops above the seam about size of heat weld rod (image 1). At the end of the seam, release the gun to prevent leaks. Any nora cold weld tracked or spilled on the flooring must be removed immediately using 70% Isopropyl alcohol and a clean cloth, cleaning at a later stage may not be possible.

Press the nora cold weld into the seam using the flat side of the nora smoothing spatula, held nearly flat (~ 20° angle), resulting in a surface flush and on the same plane as the surface of the floor (image 2). Excess cold weld must be pressed away on each side of the seam. It is important to develop a slight gap between the excess weld and the weld within the seam for easy removal.

For vertical seams, apply masking tape to the sides of the seam. Apply cold weld as described previously and remove the tape.

For inside corners, clean the surface using 70% Isopropyl alcohol and allow to dry. Carefully apply the cold weld to the corners. Do not apply more than is needed. Use the rounded end of the nora smoothing spatula to remove the excess cold weld creating a rounded joint. Spray 70% Isopropyl alcohol and finish the weld by lightly smoothing it with your finger to an acceptable finish.

For outside corners, apply the cold weld and shape to a square corner by removing the excess cold weld. Pull the cold weld to the side using the flat end of the spatula or a suitable putty knife. Wait for ~ 10 minutes for the weld to skin over. Spray 70% Isopropyl alcohol onto the cold weld and finish the weld by lightly smoothing with your finger to a smooth rounded acceptable finish.

The masking tape can be peeled off immediately or after it has cured for at least 4 to 8 hours depending on thickness, temperature and ambient humidity. Prevent any traffic on the seams until the nora cold weld has cured for ~ 8 hours.

Maintenance can be performed using a wet mop after 8 hours, machine scrubbing after 24 hours and, if required, buffing floors after 72 hours.

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