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# Article 1.1: Preparing Concrete for ARDEX or HENRY Underlayments

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## Product References

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- [ARDEX MC™ RAPID One-Coat Moisture Control System For Concrete to Receive ARDEX Products](#)
- [ARDEX VR 98™ Fast-Track, One-Component Moisture Vapor Retarder](#)
- [ARDEX PU 50™ One-Component, Polyurethane, Vapor Retarder](#)

## Minimum Requirements for Concrete Substrates

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Unless otherwise noted<sup>A</sup>, **neither ARDEX nor HENRY underlayments are intended for use in wet areas** or areas subject to constant water exposure.

The ambient relative humidity in the installation space must not exceed 70%. Installation areas should be well ventilated.

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<sup>A</sup> See the technical data sheet for the ARDEX or HENRY underlayment being installed to determine if the underlayment is affected by substrate moisture and/or water exposure.

## Moisture Mitigation

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### Effects of Excessive Concrete Moisture Vapor Emissions

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Failure to mitigate excessive concrete moisture can jeopardize the performance of the floor covering, the adhesive and the ARDEX or HENRY underlayment.

ARDEX and HENRY underlayments are not vapor barriers, and they will allow free passage of moisture. For this reason, **concrete moisture must be mitigated in accordance with the flooring and adhesive manufacturers' recommendations.**

Further, unless otherwise noted<sup>B</sup>, ARDEX and HENRY underlayments are intended for use over dry substrates only. Such **ARDEX and HENRY underlayments are not for use in wet areas** or in areas exposed to permanent or intermittent substrate moisture.

### Moisture Testing

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Test for moisture using the relative humidity (RH) test method in accordance with ASTM F2170.

### Defining Excessive Moisture

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Each floor covering and adhesive has a maximum concrete moisture tolerance. When moisture levels exceed these tolerances, **moisture must be mitigated prior to the ARDEX or HENRY underlayment being installed.** Consult the data sheet for the product being installed, or contact the product manufacturer.

Certain floor coverings and adhesives are suitable for installation in high-moisture conditions. However, **RH levels exceeding 90% could compromise the performance of the ARDEX or HENRY underlayment.** For floor coverings and/or adhesives approved for installation at relative humidity levels in excess of 90%, please contact the ARDEX Technical Department to determine if mitigation is necessary.

### Mitigation Options

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If it is determined that moisture is excessive, an ARDEX moisture control system can be used. See the technical data sheet for the underlayment being installed for more details.

## Substrate Preparation (Proper Prep™)

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Mechanically remove overwatered, frozen, or otherwise loose or weak concrete surfaces.

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<sup>B</sup> See the technical data sheet for the ARDEX or HENRY underlayment being installed to determine if the underlayment is affected by substrate moisture and/or water exposure.

**Mechanically remove all unsuitable materials and bond-breaking contaminants,** including, but not necessarily limited to, the following: floor coverings<sup>1</sup>, coatings<sup>1</sup>, patching and leveling compounds<sup>2</sup>, certain curing compounds<sup>3</sup>, adhesive residue<sup>4</sup>, salts and sealers.

### Burnished / Non-Porous / Non-Absorbent Concrete

For certain applications, select ARDEX and HENRY underlayments can be installed over concrete that is clean, sound, solid and uncontaminated with no mechanical preparation. See the technical data sheet for the underlayment being installed to verify 1) that the underlayment is suitable for installation over non-porous surfaces, 2) the recommended priming material and 3) priming and application instructions.

**Note that burnished concrete is not a suitable substrate for ARDEX VR 98, ARDEX PU 50 or ARDEX MC RAPID.**

### <sup>1</sup>Hard Tiles, Terrazzo, Epoxy Coatings

Many ARDEX and HENRY underlayments are suitable for installation over tiles (ceramic, quarry, porcelain), terrazzo (cementitious or epoxy) and epoxy coatings on concrete. Ensure that they are sound, solid and well-bonded.

Mechanically remove all sealers and waxes.

**Note that hard tiles, epoxy terrazzo, or epoxy coatings are not suitable substrates for ARDEX VR 98, ARDEX PU 50 or ARDEX MC RAPID.**

### <sup>2</sup>Patching and Leveling Compounds

Select ARDEX and HENRY underlayments are suitable for installation over well-bonded patching and leveling compounds on concrete. See the product's technical data sheet for verification and priming instructions.

**Note that, other than select ARDEX and HENRY underlayments, patching and leveling compounds are not suitable substrates for ARDEX VR 98, ARDEX PU 50 or ARDEX MC RAPID.**

Ensure the patching / leveling compounds are sound and solid. Compounds to receive ARDEX or HENRY underlayments must exhibit a minimum compressive strength of 3,000 psi, a minimum density of 100 pcf and minimum tensile and bond strengths of 200 psi.

Use mechanical preparation methods to completely remove overwatered, frozen or otherwise weak patching and leveling compounds.

### <sup>3</sup>Curing Compounds

**It is imperative to be able to determine the type of curing compound that was used before proceeding.** Any curing compound that cannot be identified should be completely, mechanically removed.

## Silicates and Acrylic Resins

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Test areas of select ARDEX and HENRY underlayments (see the product's technical data sheet for verification) can be installed and evaluated over concrete slabs that have been treated with either silicate or acrylic resin curing compounds. These compounds must be installed in strict accordance with the compound manufacturer's written recommendations. If a silicate type has been used, all residual salts must be removed.

## Wax, Petroleum and Dissipating Compounds

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Please be advised that there are a number of curing compounds sold today that are wax- or petroleum-based emulsions. **These are permanent bond breakers** that must be removed completely prior to patching or leveling.

**Dissipating compounds also are likely to compromise bond** and must be removed completely by mechanical means prior to any ARDEX or HENRY material being installed.

## <sup>4</sup>Adhesive Residue

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### Unsuitable Applications

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Under the following conditions, adhesive residue must be completely, mechanically removed via shot blasting or similar prior to installation of the ARDEX or HENRY underlayment.

- The ARDEX or HENRY underlayment is not suitable for installation over adhesive residue. See the technical data sheet for the underlayment being installed for verification.
- The adhesive residue is water soluble. See the "Testing for Water-Solubility / Integrity" section below.
- The adhesive residue is brittle, powdery, weak or otherwise of poor integrity. See the "Testing for Water-Solubility / Integrity" section below.
- ARDEX MC RAPID, ARDEX VR 98 or ARDEX PU 50 will be installed. Neither ARDEX MC RAPID, ARDEX VR 98 nor ARDEX PU 50 is suitable for installation over adhesive residue.
- The adhesive residue will interact with the new adhesive and/or bleed through the new floor covering. ARDEX and HENRY underlayments are not intended to isolate the adhesive residue from the new flooring installation.
- The adhesive residue is polyurethane. Polyurethane materials are not suitable to receive bonded courses, including ARDEX and HENRY underlayments.

### *Testing for Water-Solubility / Integrity*

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To test for water-solubility and integrity, proceed as follows:

1. Scrape the adhesive.
2. Use a razor blade to create a crosshatch pattern.
3. If adhesive flakes off, stop. This adhesive does not have good integrity and must be mechanically removed.

4. If no flaking is observed, pour hot tap water onto the crosshatched area to completely saturate the adhesive.
5. Keep area wet with hot water for 20 minutes minimum.
6. Rub wet adhesive with fingertips.
7. If any of the following are observed, stop. The adhesive is water soluble and must be mechanically removed.
  - a. The adhesive feels soapy / slimy.
  - b. The adhesive has changed in color and / or appearance.
  - c. The water has changed in color and / or appearance.

### Suitable Applications

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Non-water-soluble adhesive that will not be removed (see the “Unsuitable Applications” section above) **must be prepared to a thin, well-bonded residue using the wet-scraping technique** as recommended by the Resilient Floor Covering Institute. The prepared residue should appear as nothing more than a transparent stain on the concrete after scraping.

In most cases, all patching and leveling compounds below the adhesive must also be removed down to clean concrete. See the technical data sheet for the underlayment being installed to determine whether the underlayment is suitable for installation over existing patching and leveling compounds.

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