EPOXY FLOORING SYSTEM FOR – HIGH MOISTURE SUB-STRATES (EPOXY MOISTURE BARRIER SYSTEM)

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Introduction

Concrete substrates often contain residual moisture due to environmental humidity, incomplete curing, or the absence of proper damp proofing. High moisture levels can lead to **epoxy delamination, blistering, and adhesion failure** if not properly treated.

The **Epoxy Flooring System for High Moisture Substrates provides a moisture-tolerant, epoxy-based moisture barrier primer system** designed to **seal damp concrete and allow controlled vapor transmission** before the application of standard epoxy flooring systems. This ensures long-term adhesion and prevents moisture-related flooring defects.

Recommended Use Cases

- Basements and sub-grade structures
- Industrial floors in humid zones
- Water treatment plants and pump rooms
- Food and beverage facilities with wet processing areas
- Parking basements or coastal environments
- Warehouses and manufacturing units with newly cast concrete floors

Step-Wise System Description

Step 1: Surface Preparation

Proper surface evaluation and preparation are critical to ensuring successful epoxy adhesion and moisture control.
All necessary surface repairs, including crack filling or substrate restoration, must be completed prior to the application of any epoxy flooring materials.
- **Moisture Testing:** Measure concrete moisture content using a **calibrated concrete moisture meter.**
  - o For **sensitive areas,** acceptable moisture content is **below 2 %.**
  - o For **general-purpose flooring**, up to **5 %** is acceptable.
  - o For **high-moisture substrates**, the system can tolerate up to 20 % **moisture** provided proper priming is carried out.
- Always apply a **primer test patch** to evaluate **compatibility and adhesion** on site.
- If **standing or puddled water** persists after repeated drying attempts, **no epoxy system** should be applied until a **permanent waterproofing solution** is implemented.
- Ressichem has a variety of waterproofing solutions available. To achieve a moisture-free substrate or a reasonably dry surface prior to the application of epoxy floors, the **Ressichem technical team** may be contacted.
- Mechanically prepare the substrate using **shot blasting or diamond grinding,** ensuring a **clean, oil-free, and dust-free** surface.
- In high-moisture zones, surface preparation is even more critical for achieving penetration and bond strength.
- For **minor voids and repairs,** mix **Ressi EPO Primer WR** with **Ressichem's washed, graded, and completely dried (zero-moisture) silica sand** to create a dense repair mortar.
- For **crack filling,** use **Ressi EPO Crack Fill WR,** a moisture-resistant, high-strength epoxy filler.

Step 2: Application of Ressi EPO Primer WR – Water-Resistant Epoxy Primer

Apply **Ressi EPO Primer WR**, a **moisture-tolerant, solvent-free primer** formulated for use on damp concrete surfaces. It functions as both a **primer** and an **effective moisture barrier**.
- Mix resin and hardener thoroughly according to datasheet instructions.
- Apply evenly using a **trowel or epoxy squeegee** to ensure full surface coverage.
- Allow curing before proceeding with subsequent coats.

Step 3: Application of Ressi EPO Mid Coat S – CR

Apply **Ressi EPO Mid Coat S – CR,** a **chemical- and moisture-resistant, high-build, solvent-free mid coat** providing the structural body of the flooring system.
- Apply using a **notched trowel or epoxy squeegee.**
- Minimum recommended **thickness – 1000 microns** for light-duty floors.
- For **medium-duty applications**, apply at **2000 microns.**
- For **heavy-duty applications**, apply at a minimum of **3000 microns or above** for enhanced mechanical and chemical performance.
- Allow full curing before applying the final top layer.

Step 4: Application of Desired Topcoat and Marking

Select the appropriate topcoat depending on duty level and environmental exposure.
- **Light-Duty Floors (≤ 1000 µm total system):** Use any **two-component epoxy topcoat** from Ressichem's range.
- **Medium-Duty Floors (≈ 2000 µm):** Apply two- or three-component topcoats as required.
- **Heavy-Duty Floors (≥ 3000 µm):** Use only s**olvent-free, high-build epoxy topcoats at a minimum 2000 µm thickness.**
- Where markings are required, use compatible **Ressi EPO Roll Coat** or other approved epoxy marking materials in contrasting colors.

Note:
- In all cases, **application of a mid-coat is mandatory.**
- Only **approved sample areas** should be applied before full-scale execution to ensure compatibility with substrate conditions.
- **Do not apply** epoxy coatings over surfaces with active water movement or continuous water ingress.
- Always refer to the **Ressichem Technical Datasheet (TDS)** for detailed product, mixing, and curing information.

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System Advantages

- **Moisture Barrier Performance:** Designed to tolerate and control up to 20 % substrate moisture.
- **Superior Adhesion:** Bonds effectively to damp or green concrete.
- **Chemical & Mechanical Resistance:** Resists mild chemical exposure and wear.
- **Flexible Application Range:** Suitable for light-, medium-, and heavy-duty traffic.
- **Repair Compatible:** Primer can be blended with silica to repair voids and pores.
- **Seamless Protection:** Prevents blistering and delamination in humid environments.

Maintenance Guidelines

- Inspect for signs of delamination or trapped moisture periodically.
- Keep the floor surface clean and free from chemical residues.
- Avoid long-term exposure to standing water.
- **Periodic maintenance should include re-coating whenever required** to maintain the integrity of the moisture barrier.
- For persistent moisture intrusion, reassess waterproofing or drainage systems.

System Summary Table

Parameter	Description
System Name	Epoxy Flooring System for – High Moisture Substrates (Epoxy Moisture Barrier System)
Area Type	Specialized / High-Performance – Moisture-Affected Concrete Floors
Traffic Exposure	Light to Heavy (Depending on Topcoat Selection)
Primary Requirements	Moisture Resistance and Adhesion Strength
Primer	Ressi EPO Primer WR – Moisture-Tolerant Primer
Crack Filler	Ressi EPO Crack Fill WR
Mid Coat (Compulsory)	Ressi EPO Mid Coat S – CR (1000 µm Light / 2000 µm Medium / 3000 µm+ Heavy)
Topcoat (Varies by Duty)	2K / 3K Epoxy Topcoat / Solvent-Free High-Build Epoxy
Silica Used	Washed, graded, and completely dried (zero moisture content) silica sand
Total System Thickness	1000–3000+ Microns (Based on Duty Classification)
Application Method	High-Build Trowel or Epoxy Squeegee (Roller Only for Markings)
Finish Type	Smooth, Gloss / Semi-Gloss
Curing Time Before Use	48–72 Hours (Light Use) / 7 Days (Full Cure)
Key Benefits	Moisture Tolerance, Adhesion Strength, Durability, Seamless Finish

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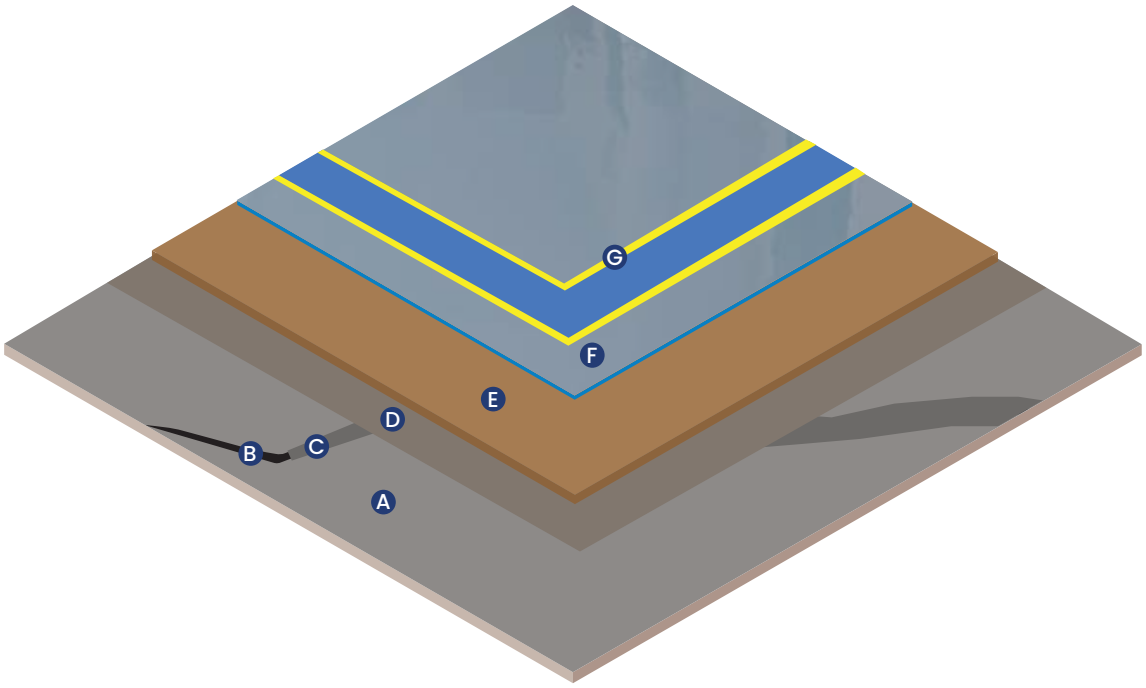
Conclusion

The **Epoxy Flooring System for High Moisture Substrates** by **Ressichem** provides an effective solution for **concrete floors with elevated moisture levels**, offering superior adhesion, moisture resistance, and durability.
By combining **Ressi EPO Primer WR, Ressi EPO Mid Coat S – CR,** and an appropriate epoxy topcoat, this system ensures a **robust, seamless, and long-lasting flooring surface** even under challenging moisture conditions.

System Summary



A) Cementitious Surface: (Concrete slab or screed)
B) Cracks and surface damage
C) Crack Filler and Repairing Materials
D) Ressi EPO Primer WR
E) Ressi EPO Mid Coat S – CR
F) Two or Three Component Required Topcoat (As recommended)
G) Marking Coat (As recommended)

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