Airport Runway Rapid Repair Solution

Restore, Reopen, and Protect — Same Shift Runway Rehabilitation

Fast Repairs. Long■Term Durability. Trusted by Global Infrastructure.

What You Get in One Page

• **Objective:** Restore runway concrete and joints fast, safely, and durably — reopen within ~2 hours where conditions allow.
• **Scope:** Spall/crater patching, joint rebuild & sealing, sub base void filling/stabilization, durability upgrade for slabs/shoulders.
• **Deliverables:** Method statement, materials & equipment list, QC checkpoints, reopening criteria, warranty & after service.

1) Your Challenges on Active Runways

• Time window is short — night or off peak closures allow only a few hours.
• High loads and dynamics in touchdown/braking zones demand early strength and fatigue resistance.
• Moisture, fuels, de icers, UV — repairs must be impermeable and chemically robust.
• Hidden voids lead to pumping and rocking slabs — sub base needs stabilization.
• Joints deteriorate first — open or raveled joints admit water and create FOD risks.

2) ZRETE System Approach (Pick by Scenario)

A. Rapid Full Depth or Partial Depth Patching — Reopen Same Shift

• **Material:** Rapid Setting Concrete high early strength formulation.
• **Why it works:** Flowable placement, fast strength gain, shrinkage compensated; durable in wet/cold climates.
• **Typical result:** Saw cut & removal → placement → finish & cure → **reopen in ~2 hours** (subject to section size & temperature).

B. Expansion Joint Rehabilitation — Ride Quality + Waterproofing

• **Materials:** Rapid Setting Concrete (nosing rebuild) + MS12A Silane Modified Joint Sealant (flexible, fuel resistant).
• **Why it works:** Hard nosing resists impact; elastic sealant maintains watertightness under thermal cycles and vibration.

C. Sub Base Void Filling / Slab Stabilization — Stop Rocking & Faulting

• **Material:** Two Component Polyurethane Injection Grout.
• **Why it works:** Low viscosity, expanding resin travels to fill voids, restores support, reduces pumping and corner breaks.

D. Durability Upgrade — Make Repairs Last Longer

• **Materials:** Silane Impregnating Sealer and/or Water Based Capillary Inorganic Waterproofer.
• **Why it works:** Deep hydrophobization + capillary blocking reduce water/chloride ingress and freeze thaw damage.

3) How We Execute (Condensed Method Statement)

• Survey & plan: diagnose distress, voids, and traffic control; prepare quantities for the time window.
• Removal & prep: saw cut, remove loose concrete; clean to sound substrate; SSD or as per TDS; condition the area in cold weather.
• Placement: rapid patches (mix/place/finish/cure); void filling via injected PU; joint rebuild + MS12A installation (correct geometry).
• Reopen: verify early strength and surface temperature; reopen once thresholds pass and FOD cleared.
• Durability: apply silane and/or capillary treatment on cured concrete; schedule inspections.

4) Quality & Acceptance

• Early strength & reopening curve verified on site (cubes or in situ).
• Bond integrity: no rocking/voids beneath patches; pull off tests as required.
• Joint profile: clean, primed, correct sealant geometry; no overflow, no adhesion loss.
• Durability: water drop test for silane; documented coverage and cure logs.

5) Safety & Environmental

• Night work lighting, barricade zones, and constant FOD control.
• Fuel resistant, low VOC options; waste capture and spill kits at mixing/injection points.
• Toolbox talks and method briefings before each shift.

6) Warranty & After Service

• Standard material warranty per datasheets; optional performance based warranty by usage class.
• Post repair audits (30/90 days) and refresher training for airfield crews.

7) Typical 1 Night Program (Example)

• 20:00 Mobilize & barricade → 20:30 Demolition & prep
• 22:00 Place Rapid Setting Concrete → 23:00 Finish & cure
• 00:30 Install MS12A on cured joint nosing
• 01:00 Strength check; 02:00 Reopen (subject to field results)
• Next clear night: Apply silane on repaired zones

Product Matrix (3 Column Compact)

Rapid Setting Concrete High early strength for spall/crater patching; quick reopen; shrinkage compensated.	**MS12A Silane Modified Joint Sealant** Durable, fuel resistant elastic sealing for runway and taxiway joints.	**Two Component Polyurethane Injection Grout** Expanding, low viscosity resin for sub base void filling and slab stabilization.
Silane Impregnating Sealer Deep hydrophobization to reduce water & chloride ingress; preserves friction.	**Water Based Capillary Inorganic Waterproofer** Mineral pore blocking system for long term waterproofing and durability.	

Next Steps

- Share your runway grid map and closure window.
- We return a quantified bill of materials, shift plan, and reopening criteria.
- Pilot one critical zone, then roll out across priority areas.

Contact

ZRETE | www.zrete.com | info@wcrete.com | +86 153 7387 2353