

Pavement-renovation with Bitufor on airports

References and informations

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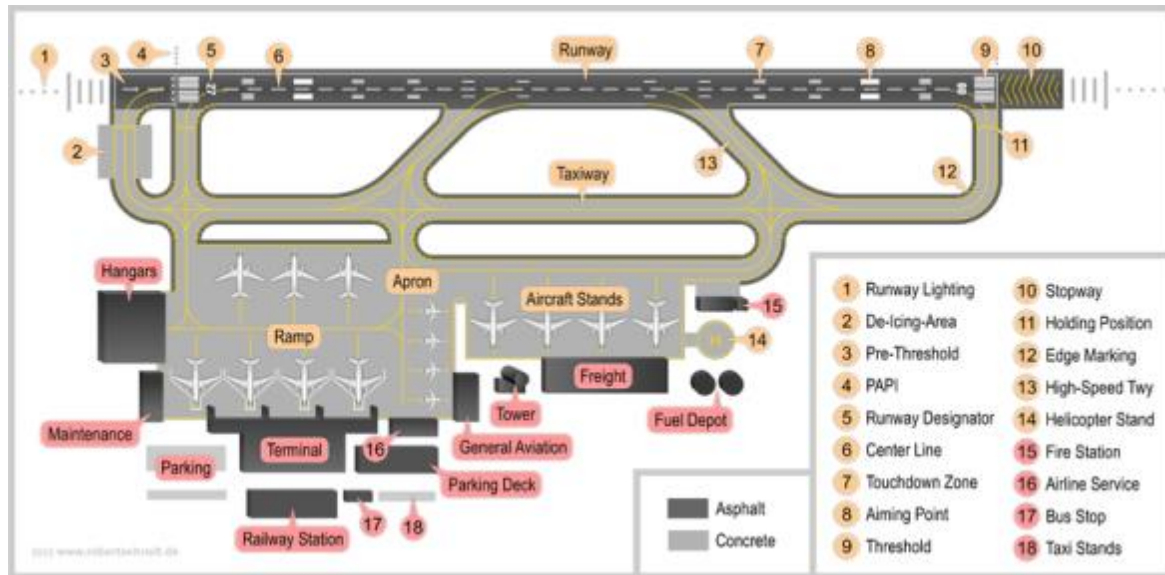
Infrastructure is not growing as fast as needed



3 main problems in infrastructure

- Missing bearing capacity
- Big joints and cracks in concrete surface
- Reflective cracking

Where do you need Mesh Track®/Dramix® ?



Mesh Track® as a renovation system:

Runway, taxiway, apron, ramp, aircraft stands = Mesh Track® over concrete

Dramix® for new pavements:

Apron, ramp, aircraft stands, hangars, freight, parking, etc....

Airport references, executed in the last 15 years

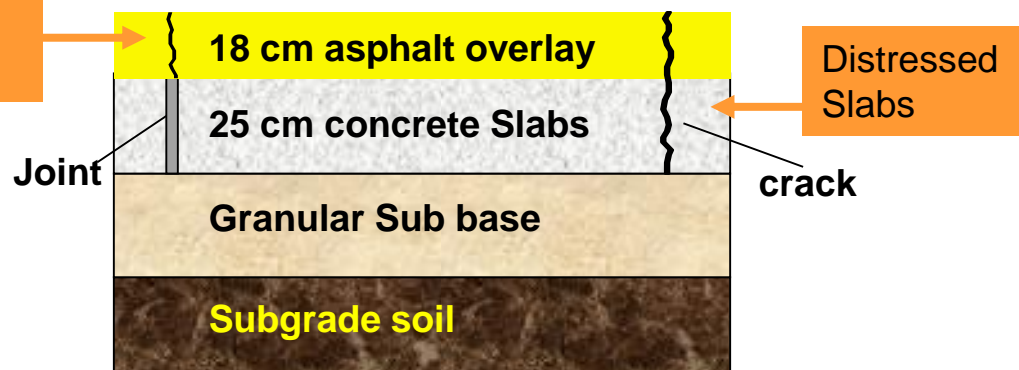
COUNTRY	PROJECT	Use	area	OVERLAY ON	M²	Time	CONTRACTOR
Belgium	Military Base Florennes	Military	Taxiway	Asphalt	3.800	mei/93	Socogétra
Belgium	Kleine Brogel / Peer	Military	Taxiway	Asphalt	4.230	okt/94	Van Broeckhoven
Belgium	Military Base Florennes	Military	Taxiway	Concrete	43.230	mei/98	Joly
Germany	Reconstruction runways Airport of Erfurt	Civil	Runway	10 cm asphalt + 45 cm concrete	122.850	aug/97	Heilit & Wörner
Germany	Magdeburg Airport	Civil	Taxiway	Asphalt	800	jun/97	Strabag
U.K.	Mod. RAF Northolt	Military	Taxiway	Asphalt	5.500	aug/97	Ass. Asphalt (Tarmac)
Italy	Airport of Gioia del Colle (BA)	Military	Runway	Concrete	825	10/00	Edilservice
Italy	Airport of Treviso	Civil	Taxiway	Concrete	5.090	12/00	Feltrin S.r.l.
Poland	Katowice- Pyrzowice	Civil	Taxiway	Concrete	5.200	2009	Gruppo Bitumi Poland
Slovakia	Sliac	Military	Taxiway	Concrete	6.000	2008	
Poland	Minsk- Mazowiecki	Military	Logistic areas	Concrete	11.400	2012	Gruppo Bitumi
Belgium	Brussels Int'l. Zaventem	Civil	Taxiway	Concrete	50.000	2000-20009	Mobilmat
Poland	Warsaw Int'l. Okęcie	Civil	runway	Concrete	55.000	2013	Gruppo Bitumi Poland
Netherlands	Eindhoven	Civil	runway	concrete	150.000	2016	BAM - Rapid & Possehl
Belgium	Charleroi airport	Civil	Logistic areas	concrete	13.700	2017	Wanty - Willemen Infra

Renovation of the Runway Erfurt

- Carried out in 1997
- Bitufor-MT1 reinforced asphalt overlay over distressed concrete slabs
- 110 000 m²
- 17500 m² installed each weekend
- concentrated loads of 150000 N

Renovation of the Runway Erfurt

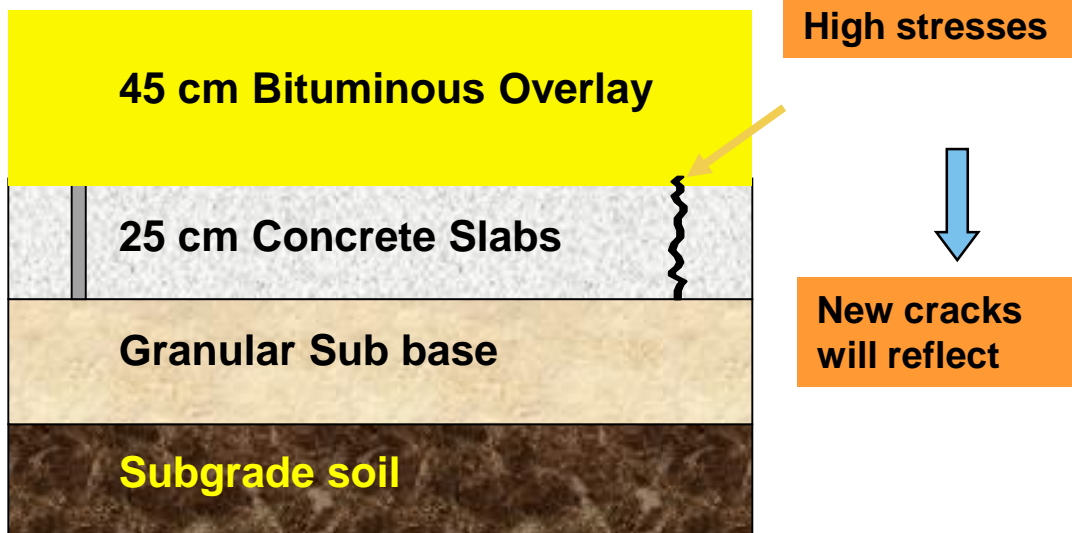
Reflective
Cracking



Situation before
renovation

Technical Study with
BISAR by “Technische
Hochschule Darmstadt”

Renovation of the Runway Erfurt



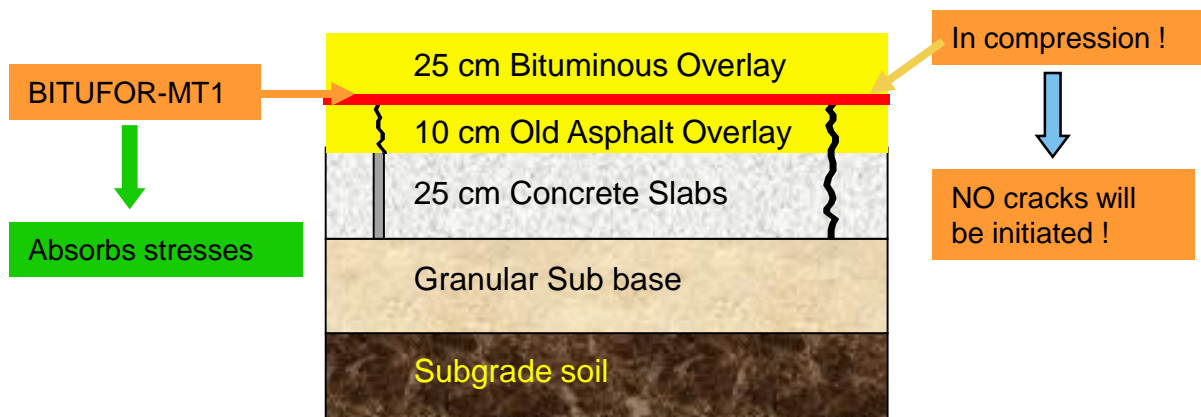
Traditional solution

Milling total depth of asphalt layer

Stabilizing concrete slabs (by crack & seat)

New bituminous overlay of 45 cm

Renovation of the Runway Erfurt



Solution with Bitufor®

Milling total depth of asphalt layer

Stabilizing concrete slabs (by crack & seat)

New bituminous overlay of 25 cm

Renovation of the Runway Erfurt

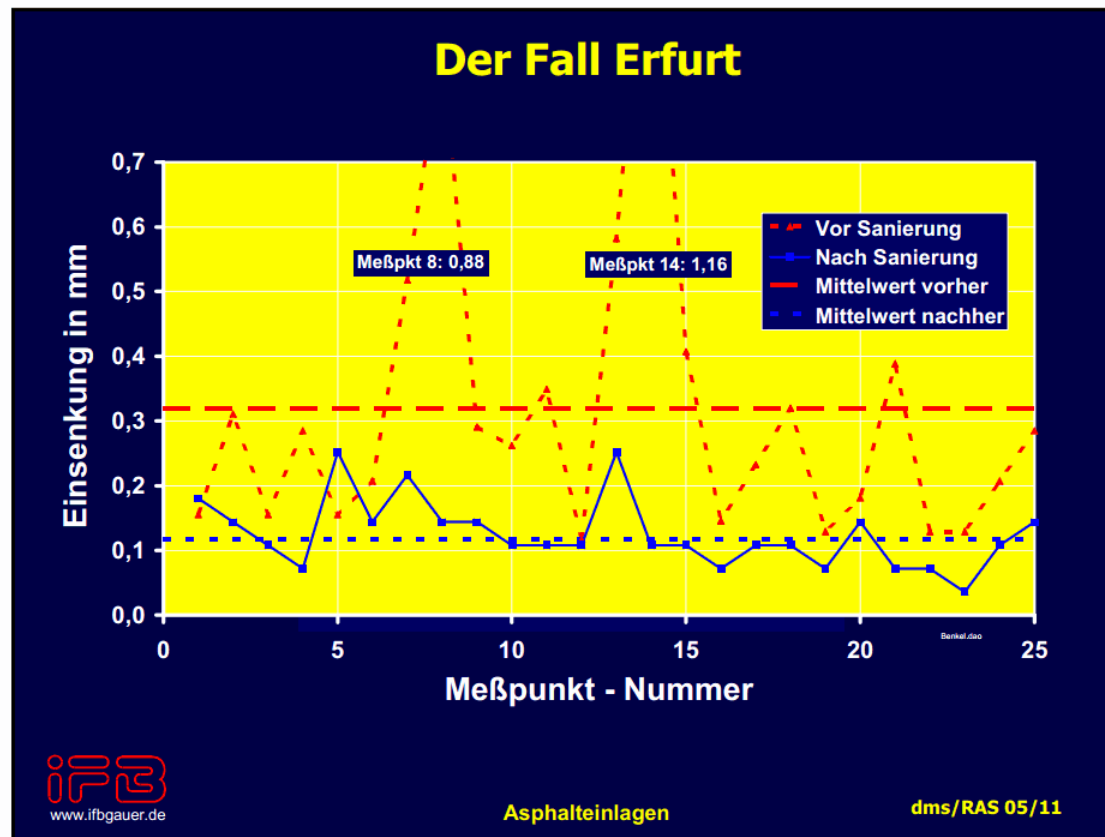
In Situ Evaluation by “Institut Dr.-Ing. GAUER”:

Deflection Measurements with the Benkelman-Beam before and after rehabilitation



- Bitufor shows higher Bearing Capacity compared to traditional solution
- 10 cm less to mill
- no ‘crack & seat’ operation
- 45% savings in asphalt
- reinforced against reflective cracking
- 40% shorter execution time (weekend = 17.500 m²)

Deflection measurements of the Runway Erfurt



Maintenance of taxiways at Brussels International



Brussels Airport

Location	The Brussels Airport Company
Size of the project	7 taxiways
Prescriber	-
Contractor	NV Mobilmat
Date of execution	2000 - 2008



Pierre Biesemans - Service Manager



Mesh Track project sheet

Problem

The concrete taxiways were in a terrible state. The concrete slabs were starting to show horizontal and vertical cracks and in the joints the concrete started to crumble. At the time, however, the budget did not allow for any of the full renovations of this surfacing.

Solution

Air traffic at the airport cannot be compared to daily traffic on the roads. Aeroplanes are responsible for huge wear and tear affecting the pavement surface. Consequently, the airport had to start looking for very solid and durable reinforcement. Mesh Track was the only alternative for them to solve the problem.

Result

At the moment, 7 different taxiways have been renovated with Mesh Track. In an 8-year period, they have had only positive experiences with this durable solution.

[Click to open sheet](#)

Renovation of taxiways at Katowice International

Milling 13 cm of concrete

MT1 + 8 cm binder + 4 cm top layer

Decision taken by general contractor and airport authority



Rehabilitation of the runway at FLORENNES Air Base

(45000m² - Belgian NATO Base for F-16 Fighter Bombers)

- The Bitufor®-system was used for the renovation of an old and abandoned run- and taxiway with irregular and varying structure of the subbase:
- Thanks to MT which suppresses reflective cracking, it was possible to build an asphalt overlay on top of this irregular structure, in accordance with NATO technical prescriptions.
- The solution was determined by the Technical Services for Infrastructure of the Belgian Armed Forces, in agreement with the Technical Staff of Bekaert.
- Studies have shown that the total bearing capacity is substantially increased, also since it is possible to keep the former, well-compacted, foundations.

Renovation of runway at Warsaw- Okecie International

Glassgrid originally in tender 2013 for 55.000 m² !

Change to Bitufor by engineering office ILF, general contractor BUDIMEX and airport authority!

Reasons:

- Better performance of steel (load bearing capacity)
- Execution problems of glass grid at the first renovation part in 2011! (waves of the mesh, bad bonding, longer execution time as foreseen...)

Bitufor was executed up to 18.000 m² per day

Summary

The Bitufor®-Mesh Track system offers:

- A shorter execution time (at least 40 % in comparison with a traditional reconstruction)
- A suppression of reflective cracking
- An increase in servicetime expectancy
- An increase of the bearing capacity
- An economical solution (life cycle cost)
- Experience and references since 20 years
- Design support by Bekaert

