

Airfield pavement engineering competencies

Nibuxs, April 2013

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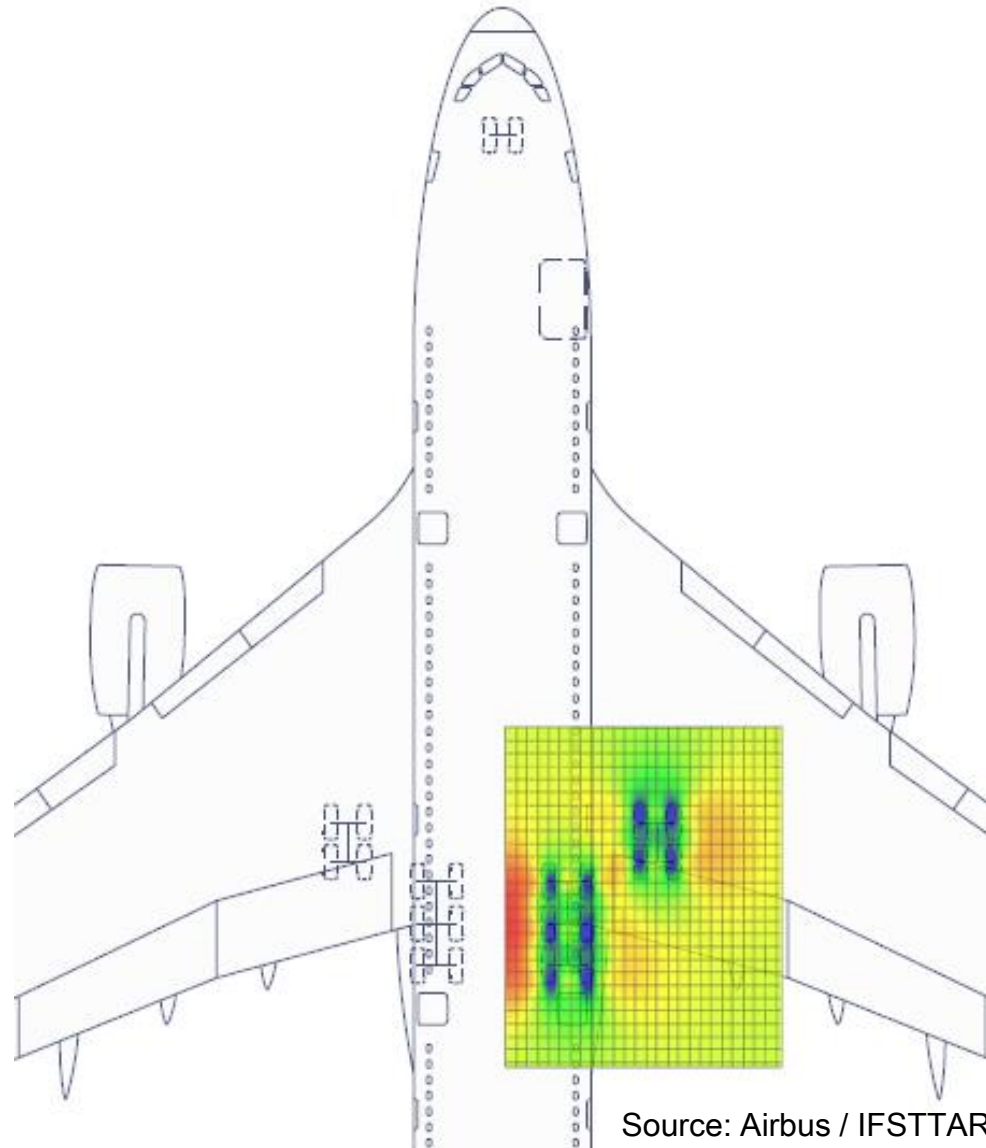
Ingénieurs civils spécialisés en construction routière

Airfield pavement engineering competencies

1. Pavement structural design and ACN-PCN method
2. Pavement material design and technical expertise
 - Bituminous mixtures
 - Concrete slabs
3. Pavement bearing capacity monitoring & evaluation
4. Aerodrome ICAO Compliance (Annex 14 Vol. I)

Structural design

- ▶ Conventional design methods (according to ICAO)
 - ▶ Design charts (flexible pavements)
 - ▶ Portland Cement Association method (rigid pavements)
- ▶ Mechanistic design methods
 - ▶ FAA method (USA)
 - ▶ STAC method (France)
- ▶ PCN calculation and special authorizations analysis (ACN-PCN method)



Source: Airbus / IFSTTAR

Material design and technical expertise

- ▶ **New materials**
 - ▶ Guidance in material/structural choices
 - ▶ Bituminous mixture design: Superpave/French/Belgian methods with software-aided mixture design
- ▶ **Existing materials**
 - ▶ Investigation of material failure reasons
 - ▶ Guidance in rehabilitation/repair strategies



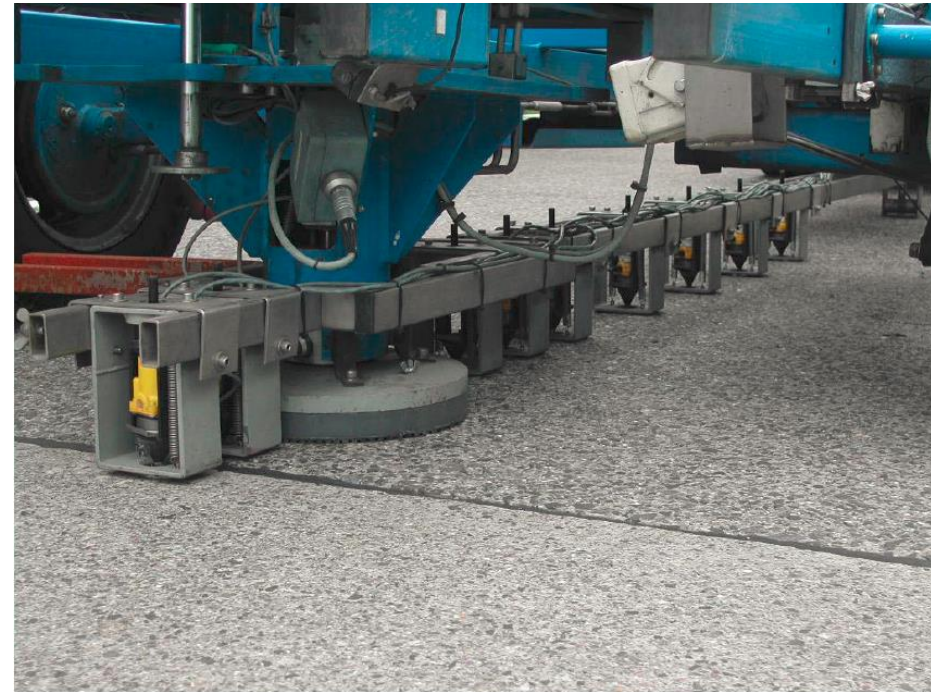
Bearing capacity monitoring & evaluation

▶ Monitoring

- ▶ Structural monitoring with Heavy Weight Deflectometer (HWD): monitoring organisation and results interpretation
- ▶ Residual lifespan calculation
- ▶ PCN calculation
- ▶ Skid resistance analysis

▶ Rehabilitation

- ▶ Guidance in rehabilitation and repair strategies aiming to restoring bearing capacity



Source: www.infralab.ch

References 1/3

Geneva International Airport: Taxiway structural design

- ▶ Period: 2012
- ▶ Project objectives:
 - ▶ Taxiway pavement design (flexible / rigid)
 - ▶ Analysis of various traffic scenarios
 - ▶ Calculation of residual life



Source: www.gva.ch

References 2/3

Les Eplatures Airport: Runway extension

- ▶ Period: 2012 - 2014
- ▶ Project objectives
 - ▶ Runway pavement design (flexible)
 - ▶ Pavement material choice and requirements
 - ▶ Construction follow-up
 - ▶ Existing pavement: bearing capacity evaluation and residual lifespan calculation



Source: www.leseplaturesairport.ch

References 3/3

Sion Airport: ICAO Compliance

- ▶ Period: 2008 - 2012
- ▶ Project objectives:
 - ▶ Airport compliance to ICAO Annex 14, volume I
 - ▶ Heliport compliance to ICAO Annex 14, volume II
 - ▶ Organisation of Federal Office of Civil Aviation (FOCA) questionnaire answers



Source: www.piste25.ch

Contacts



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