

## Appendix 5

## Demonstration Projects

Austria	Checkpoints	poster and detailed questionnaire
Czech Republic	Motorway	poster and detailed questionnaire
Finland	school	detailed questionnaire
France	Granite	poster
Germany	Castle	poster and detailed questionnaire
Hungary		detailed questionnaire and pictures
Lithuania	Santariskes Trade	detailed questionnaire and picture
	Basanavikiaus	detailed questionnaire and picture
Poland	Mining	poster and detailed questionnaire
Spain	Airport Barajas	poster and detailed questionnaire

# Austria – Checkpoint



## Project: Checkpoint

Type of construction: Sensors for train observation

Place: Vienna, Austria

Owner: Austrian Federal Railways

Project manager: Alcatel Austria

## Lifetime Contact Person

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## Lifetime Principles applied in this project:

- Investment Planning
  - Whole life investment economy from the viewpoint of the investor
- Lifetime Design
  - Analysis of the requirements of owner/user (e. g. QFD method)
  - Lifetime usability and functionality and obsolescence analysis and design
  - Lifetime performance data of materials and products
  - Service life planning
  - Risk and reliability analysis and control
  - User's guide for operation and maintenance of the facility
  - Design for reuse
- Lifetime management and maintenance
  - “Infrastructural management” (security, cleaning)
  - Lifetime modernisation planning and execution
- Recycling
  - Selective demolition for recycling
  - Reuse
  - Recycling
- Ecology
  - Energy efficiency in use

# Czech Republic - Motorway



## Project: Motorway D8

Type of construction: new transport facility

Place: Northwestern Czech Republic

Owner: Road and Motorway Directorate of Czech Republic

Project Manager: Ing. Skvor Vratislav

## Lifetime Contact Person:

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## Lifetime Principles applied in this project:

- Investment Planning
  - Whole life investment economy from the viewpoint of the investor
- Lifetime Design
  - Analysis of the requirements of owner/user (e. g. QFD method)
  - Whole Life Costing
  - Lifetime performance based design
  - Durability limit states and service life design
  - Risk and reliability analysis and control
- Lifetime management and maintenance
  - Lifetime maintenance planning and execution
  - Lifetime modernisation planning and execution
  - Risk and reliability analysis and control
  - Predictive assessment of performance and service before and after the repair
  - Network planning and optimising allocation of resources under the requirements of human requirements, lifetime economy, lifetime ecology and culture
- Ecology
  - Lifetime economy of the nature (ecology) and lifetime environmental impact assessment
- Culture
  - Building traditions
  - Aesthetics

## Finland – School



### **Project: School**

Type of construction: Education Building

Place: Espoo

Owner: ABB Credit Ltd.

Project Manager: NCC

### **Lifetime Contact Person:**

### ***Lifetime Principles applied in this project:***

- Investment Planning
  - Whole life investment economy from the viewpoint of the investor
- Lifetime Design
  - Analysis of the requirements of owner/user (e. g. QFD method)
  - Whole Life Costing
  - Lifetime performance based design
  - Lifetime performance data of materials and products
  - Service life planning
  - User's guide for operation and maintenance of the facility
  - Design for changes of use and requirements of use
- Lifetime management and maintenance
  - Lifetime maintenance planning and execution

## France – Office Building



**LIFETIME ENGINEERING**  
of Buildings and Civil Infrastructures

Objectives of NATIONAL DISSEMINATION GROUPS in Thematic Network Lifetime:  
National information, demonstration, education and training of lifetime engineering

Demonstration project of lifetime engineering in : FRANCE



**The project**  
A new tower for the "Societe Generale" Bank

Project : 2004  
Surface : 55 000 m<sup>2</sup>  
214 m high  
20 floors in superstructure of 1700 m<sup>2</sup> each  
27 floors in substructure (2400 m<sup>2</sup> each)  
with 30 000 m<sup>2</sup> of parking

**Stakeholders**

Building Owner: GALYBET (subsidiary SO)  
Building Owner associate :  
- COSECO (subsidiary SO - JACOBS FRANCE)  
- SOSEPROF (subsidiary SO - J.H.G.E.)

Property developer: NEXITY

Project superintendent (Design):  
- STELLER CONSULTING DE PARIS/IMPARC (architect)  
- COTERBA IMMOBILIER SERVICES (Engineers)

Project superintendent (construction):  
- COTERBA

Developer:  
- EPASA  
(Public establishment of installation SENE ARCHE)

Financing  
Beginning of the studies: July 2000  
Building permit: 23 November 2000  
End of building: April 2005

Lifetime engineering fields covered by the project  
The project has particularly focus on the following domains (BREEAM) criteria:

- Hygrothermic comfort
- Quality of water
- Energy management
- Visual Comfort
- Quality of spaces
- Acoustic comfort
- Management of maintenance
- Integrated choice of the products, systems and processes of construction
- Harmonious relation of the buildings with their environment
- Building site with low harmful effects
- Management of water

**Project Contact Person: EPASA**

**Project Manager: EPASA**

**Project: Societe Generale bank**

Type of construction: High-rise Office Building

Location:

Owner: Galybet (societe Generale)

Project Manager: EPASA

**Lifetime Contact Person:**

## Lifetime Aspects applied in this project:

- Hygrothermic Comfort
- Visual comfort
- Acoustic comfort
- Olfactory comfort
- Indoor Air Quality
- Quality of spaces
- Quality of water
- Energy management
- Management of maintenance
- Management of water
- Management of waste
- Integrated choice of the products, systems and processes of construction
- Harmonious relation of the buildings with their environment
- Building site with low harmful effects

# Germany – Tucher Castle Renovation



**Objectives of NATIONAL DISSEMINATION GROUPS in Thematic Network Lifeline:**  
National information, demonstration offices, exhibitions and training of lifetime engineering

**Demonstration project of lifetime engineering in GERMANY: TUCHER castle in Feucht**

Repair of a castle (substantial heritage) - building automation in a pilot project

Type of construction: masonry castle  
Owner: A. Buhl  
Project manager: Udo Pappalardo  
Duration of the construction phase: about 18 years  
Cost of the project: 2 000 000 Euro

The building was built as summer residence for the Tucher family. It proved nice in doing back to the year 1800. During the lifetime the castle had been changed but overall, since the castle destroyed completely in its high and closed way of building the castle is typical for the regional Renaissance architecture. The three main floor and the floor in roof level had already been used for housing. They were before used for housing, as offices and for restaurants.

Since 2000 an ambitious plan has been realized. In the historic ambience an exemplary project combining building automation and high value interior design has been realized. Over a period of about ten years the castle with a "work program" that developed constantly.

Together with manufacturers new components had been worked out and integrated in a digital building control system. Highly important was not to create singular solutions but to use serial products, that were realized and developed for modern building automation.

"Intelligent building" is a new modern term of building industry in the 21st century. We need artificial intelligence - i.e. building automation - for being comfortable and still resource preserving in a building. The future of building will be enable modernization or repair. The repair of the castle took into account ecological aspects for building materials. The project tries to combine ancient and modern techniques. Building automation should not be perceived for general living about such one building, including residence will profit of it. In the Tucher castle today's available technologies are presented. They are available as serial products.

The project is enhancing the use of building automation to an "art" of domestic production with concrete and steel. Cooperative and experience with its control in parameter adjustment. Electronic devices (sensors, valves, actuators...) can be used as serial products. Of course, the traditional elements like ventilation, floor and roof heating are integrated in the automation system. Lighting system is set up, including web camera and automatic opening devices. Equipment control between building and mobile person can be installed, using GSM, internet or GPRS providing high building security.

**Technical Realization of Building BA**  
Controlled by: see: www.lifeline.de  
Lifeline: see: www.lifeline.de  
Lifeline: see: www.lifeline.de  
Lifeline: see: www.lifeline.de

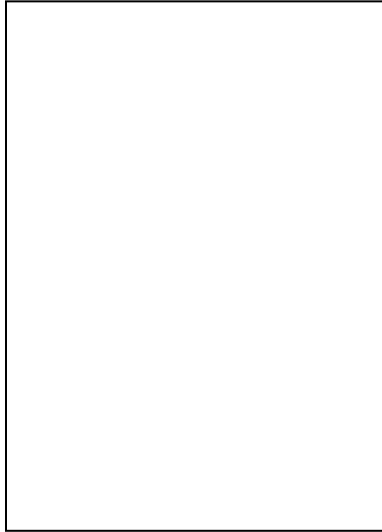
**Technical Realization of Building BA**  
Controlled by: see: www.lifeline.de  
Lifeline: see: www.lifeline.de  
Lifeline: see: www.lifeline.de  
Lifeline: see: www.lifeline.de

**Project: Tucher Castle**  
**Type of construction: Renovation**  
**Location: Feucht**  
**Owner: private**  
**Project Manager: owner**

**Lifetime Contact Person:**  
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**Lifetime Principles applied in this project:**  
 none of the principles has been ticked in the questionnaire...

## Hungary – Concrete Pavement Test Section



**Project: Concrete Pavement Test Section**

Type of construction: Material Test Section

Location: Pilis

Owner: Pest County Road Management Company

Project Manager: András Mayer

**Lifetime Contact Person:**

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### Lifetime Principles applied in this project:

- Investment Planning
  - Whole life investment economy from the viewpoint of the investor
- Lifetime Design
  - Whole Life Costing
- Lifetime Management and Maintenance
  - Predictive assessment of performance and service before and after the repair

# Lithuania – Santariskes + Basanaviciaus



## Project: Santariskes

Type of construction: Trade and Commerce Building

Owner: Santariskes

Project Manager: Marius Gureckas

## Project Basanaviciaus

Type of construction: Office Building

Owner: NVA Linava

Project Manager: Ilona Kutut

## Lifetime Contact Person:

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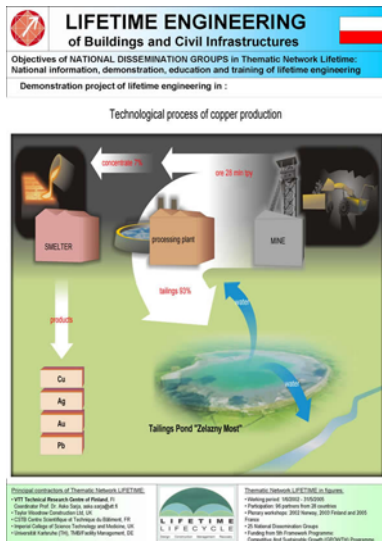
E-mail: arturas.kaklauskasvtu.lt

## Lifetime Principles applied in these projects:

- Investment planning
  - Investment Cost
- Lifetime Design
  - Analysis of the requirements of owner/user
  - Whole Life Costing
  - Lifetime usability and functionality and obsolescence analysis and design
  - Lifetime performance based design
  - Multiple attribute decision making
- Lifetime Management and Maintenance
  - Analysis of the requirements of owner/user
  - Multiple attribute decision making
- Culture
  - Business Culture (only for project **Basanaviciaus**)



## Poland – Copper Production Technology



**Project: LCA of Mining Projects**

Type of construction:

Location: Lubin

Owner: KGH Polish Copper

Project Manager: Imperial College of London

**Lifetime Contact Person:**

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## Lifetime Principles applied in this project:

- Lifetime design
  - Whole life costing
- Lifetime management and maintenance
  - "Infrastructural management"
- Ecology
  - Environmental impact profile of materials and products

## Spain – Airport Madrid Barajas

**LIFETIME ENGINEERING**  
of Buildings and Civil Infrastructures

Thematic Network LIFETIME contributes to European and worldwide development of a more sustainable built environment by producing and promoting principles, processes and methods of lifetime engineering.

Working Package 2: "Support for demonstration, dissemination and exploitation of lifetime principles"

Responsible Principal Contractor: CSTB Centre Scientifique et Technique du Bâtiment  
Dr. Jean-Luc Chevaley (j.chevaley@cstb.fr)

WP2 - Results:

**Aena** - Aeropuerto de Madrid - Barajas

**MAIN ACTIONS**

- Study of the project: quality criteria, LCA and...
- LCA, durability, energy efficiency, etc. for...
- Risk and reliability analysis, control, etc. for...
- User's guide for operation and maintenance...

**RELEVANT DATA**

**RELEVANT LIFETIME ISSUES**

**CONTRIBUTORS TO THE LIFETIME DESIGN**

**CONTRIBUTORS TO THE LIFETIME DESIGN**

**Project: New Barajas Airport Terminal**  
**Type of construction: Traffic Infrastructure**  
**Location: Madrid**  
**Owner: Aenas**  
**Project Manager: Black & Veatch**

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### Lifetime Principles applied in this project:

- Lifetime design
  - Lifetime usability and functionality and obsolescence analysis and design
  - Lifetime performance based design
  - Lifetime performance data of materials and products
  - Service life planning
  - Durability limit states and service life design
  - Risk and reliability analysis and control
  - User’s guide for operation and maintenance of the facility
- Lifetime management and maintenance
  - Lifetime maintenance planning and execution
  - “Infrastructural management”
  - Analysis of the requirements of owner/user
  - Risk and reliability analysis and control
  - Network planning and optimising allocation of resources under the requirements of human requirements, lifetime economy, lifetime ecology and culture
- Ecology
  - Lifetime economy of the nature (ecology) and lifetime environmental impact assessment technology: energy economy, raw materials economy, environmental impact, loss of biodiversity
  - Energy efficiency in use
  - Environmental impact profile of materials and products
- Culture
  - Lifestyle
  - Business culture
  - Aesthetics
  - Architectural styles and trends
  - Image