

# EUREKA PROJECT E!1383 - EUROCARE PREVENT

## 1. General description

<b>Project</b>	E! 1383 - EUROCARE PREVENT	<b>Status</b>	Finished - 26-JUN-1998
<b>Title</b>	<b>Preventive Measures Instead Of Restoration - Studies To Evaluate The Use Of Building Fabric For Climate Control</b>		
<b>Class</b>	Sub-Umbrella	<b>Technological area</b>	Environment
<b>Start date</b>	01-JUN-1995	<b>End date</b>	01-JUN-1997
<b>Duration</b>	24 months	<b>Total cost</b>	0.81 Meuro
<b>Partner sought</b>	No		
<b>Summary</b>	Measurement/Assessment Of The Effect Of Internal/External Climate Conditions On The Surfaces Of Objects Of Art And Architectural Indoor Decorations. Aim: Determine The Effect Of Changing Climatic Conditions/Suggest Improvement Measures		

## Budget and duration

Phase	Budget(Meuro)	Duration (Months)
Definition phase	0.16	2
Feasibility phase	0.08	2
Full Exploitation	0.19	4
Implementation phase	0.38	15
<b>Total</b>	<b>0.81</b>	<b>24</b>

## Member contribution

Member	Contribution	Position	Since
<b>Austria</b>	<b>45.00%</b>	<b>Notified Finished</b>	<b>26-JUN-1998</b>
Germany	5.00%	Notified Finished	26-JUN-1998
Sweden	10.00%	Notified Finished	26-JUN-1998
Slovenia	40.00%	Notified Finished	26-JUN-1998

## Participants

Company	Country	Type	Role
<b>Tu-Wien/Inst.F.Kunstgeschichte, Denkmalpflege U.Ind.Archit.</b>	<b>Austria</b>	<b>University</b>	<b>Main</b>
Nordcom Sweden Ab	Sweden	Large company	Partner
Ljubljana University/Civil Engineering Institute (Zrmk)	Slovenia	University	Partner
Bundesdenkmalamt/Abteilung Fuer Histor. Handwerkstechnik	Austria	Governm./Nat. Admin.	Partner
Schloss Schoenbrunn Kultur Und Betriebsges. M.B.H.	Austria	SME	Partner
Ing. Kopecky & Mellitzer Gmbh	Austria	SME	Partner
Dipl.-Ing. Robert Kuehnel Gmbh	Austria	SME	Partner

## Participants

<b>Company</b>	<b>Country</b>	<b>Type</b>	<b>Role</b>
Landis & Staefe (Oesterreich) Gmbh	Austria	SME	Partner
Hans Lohr Gmbh	Austria	SME	Partner
Uniprojekt Engineering Technisches Buero Gmbh & Co Kg	Austria	SME	Partner
Technisches Buero Prodingner	Austria	SME	Partner
Gutsverwaltung Feldegg	Austria	SME	Partner
Kunsthistorisches Museum Gemaeldegalerie	Austria	Governm./Nat. Admin.	Partner
Stiftung Ostdeutsche Galerie	Germany	SME	Partner
Nordiska Museet	Sweden	Governm./Nat. Admin.	Partner
Skoklosters Slott	Sweden	Governm./Nat. Admin.	Partner

## 2. Project outline

### Project description

Preventive measures instead of restoration - comparative studies to understand the suitability and desirability of using the building fabric for climate control.

Measurement and assessment of the effect of the ambient internal and external climatic conditions on the surfaces of objects of art and architectural indoor decorations. The aim is to determine the effect of changing climate conditions and to provide indications of the measures that should be taken to produce improvements.

- \* The influence of climatic parameters on the deterioration of objects of art and indoor decoration shall be monitored;
- \* Existing suitable measuring systems and measuring techniques (hardware and software) shall be adapted; comparative series of measurements to analyse the effect of climatic changes shall be conducted.
- \* The effect of the climate on the surface of the exhibits (e.g. differences between front and reverse side of paintings) shall be observed; the influence of the location of the specific room, of air flow, ventilation and different methods of climate control shall be measured using inter alia laser measurements of micromotions in paint clusters, veneer, etc.
- \* Minimum standards for climate control shall be defined.
- \* Methods to stabilize climate without full air conditioning by e.g. benefiting from physical properties of the existing building structure.
- \* A catalogue of recommended measures to improve the indoor climate and possibly save energy shall be compiled.
- \* Specifications for the purchase and installation of suitable measuring equipment (hardware and software) will be established.

### Technological development envisaged

Alternative possibilities to air conditioning and heating for the stabilisation of climatic conditions in museums and castles.

Adaptation of measurement equipment for the above-mentioned aims.

Optimisation of energy input and energy flow in objects to minimise the damage e.g. caused by condensation.

### Markets application and exploitation

- \* The climatic problems in conservation of museums and castles are similar all over Europe.
  - \* Therefore museums and castles will benefit from the results of this study.
  - \* New assessments in measuring and monitoring of the climate of such historic sites.
  - \* Innovations in heating and climate stabilisation.
- The following organisations will exploit the results as soon as they are completed:
- SCHLOSS SCHOENBRUNN - Vienna

- KUNSTHISTORISCHES MUSEUM - Vienna
- KARTAUSE MAUERBACH - Mauerbach (Lower AUSTRIA)
- HOFBURG - Vienna.

## Project codes

### **BSI**

AUY

EIC.C

ZW

conservation

climate

arts

### **NACE**

9252

Museum activities and preservation of historical sites and buildings

### 3. Main participant

**Company** **Tu-Wien/Inst.F.Kunstgeschichte, Denkmalpflege**  
**U.Ind.Archit.**  
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**Contact** **Prof. Manfred Wehdorn**  
Professor

Tel  
Fax

**Organisation type** University  
**Participant role** Main

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### Contribution to project

Project management; consulting on care of monuments and building analyses.

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### Expertise

University Professor Arch. Manfred Wehdorn: - Architect and owner of AUSTRIA's biggest planning bureau for the care of monuments - Numerous publications.

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### 4. Partner

**Company** **Nordcom Sweden Ab**  
Dalagatan, 78b  
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**Contact** **Eur. Ing. Jan Holmberg**  
Director

Tel  
Fax

**Organisation type** Large company  
**Participant role** Partner

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## Contribution to project

Curators need a simple tool to estimate possible variations in temperature/relative humidity in exhibition/storage rooms for preventive conservation. These models will be available as working tools to be used in PCs (MACINTOSH environment).

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## Expertise

Small engineering company working exclusively on the care of cultural heritage. The Managing Director is Mr. Jan Halmberg, who is an adviser on Building Services to the NATIONAL BOARD OF ANTIQUITIES of SWEDEN.

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## 4. Partner

**Company**                                        **Ljubljana University/Civil Engineering Institute (Zrmk)**  
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Slovenia

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Materials And Technologies

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**Organisation type**                        University  
**Participant role**                         Partner

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## Contribution to project

The influence of different contemporary heating systems on moisture/thermal conditions and other cultural monuments will be studied. By computational model, the sensitivity study of different materials/climate features will be done.

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## Expertise

Established by the SLOVENIAN GOVERNMENT in 1949. Most of its activities are related to the assurance of required comfort levels and the protection of exhibits in the indoor environment. The group of experts in the Buildings, Environment and Energy Centre works in research fields such as building physics, passive solar concepts, implementation of new advanced materials and innovative building components for better thermal comfort, energy efficiency, computer simulation of the thermal performance of buildings. This group of experts is skilled in R & D work in the field of computer simulation of the thermal influence on the performance of the building and its parts. It has broad experience in the field of testing and measuring methods for the thermal responses of building and their elements.

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## 4. Partner

**Company** **Bundesdenkmalamt/Abteilung Fuer Histor.  
Handwerkstechnik**  
Hofburg, Saelenstiege,  
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Head Of Department

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**Organisation type** Governm./Nat. Admin.  
**Participant role** Partner

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Contribution to project

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Expertise

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## 4. Partner

**Company** **Schloss Schoenbrunn Kultur Und Betriebsges. M.B.H.**  
Schloss Schoenbrunn,  
1130 Wien  
Austria

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**Contact** **Dipl.-Ing. Wolfgang Kippes**  
Managing Director

Tel  
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info@schoenbrunn.at

**Organisation type** SME  
**Participant role** Partner

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## Contribution to project

Project development. Measurements will be conducted in the SCHLOSS SCHOENBRUNN. Responsible for the care of the monument and corresponding investments.

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## Expertise

Dipl.-Ing. Wolfgang Kippes - Technical Director of SCHLOSS SCHOENBRUNN: - Responsible for its management - it is AUSTRIA's most important historical site and tourist centre. - Experience in project development for the restoration, preventive conservation and indoor climate monitoring of museums and historical sites.

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## 4. Partner

**Company**                      **Ing. Kopecky & Mellitzer Gmbh**  
Bruennerstrasse, 133  
1210 Wien  
Austria

Tel +43 1 290 90 33  
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**Contact**                      **Ing. Herbert Mellitzer**  
Consulting Engineer

Tel  
Fax

**Organisation type**        SME  
**Participant role**            Partner

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## Contribution to project

## Expertise

## 4. Partner

**Company**                      **Dipl.-Ing. Robert Kuehnel Gmbh**  
Anton-Scharff-Gasse, 4  
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**Contact**                      **Ing. Ernst Aringer**  
Product Manager

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**Organisation type**        SME  
**Participant role**         Partner

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## Contribution to project

Instruments and data loggers for relative humidity. Sales Manager.

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## Expertise

Knowledge of humidity-measurement, especially in the field of museums and historical buildings.

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## 4. Partner

**Company**                      **Landis & Staefe (Oesterreich) Gmbh**  
Ignaz-Koeck-Strasse, 3  
1210 Wien  
Austria

Tel +43 1 270 16 46  
Fax +43 1 278 63 40

**Contact**                      **Ing. Ludwig Kastner**  
Managing Director

Tel  
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**Organisation type**        SME  
**Participant role**         Partner

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## Contribution to project

Data measuring and recording procedures.

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## Expertise

- HVAC (Heating, Ventilation and Air conditioning) building management systems - Measuring and controlling of temperature, pressure and humidity in buildings - Data recording and data evaluation.

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## 4. Partner

**Company**                                **Hans Lohr Gmbh**  
Markgraf Ruedigerstrasse, 24  
1150 Wien  
Austria

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**Contact**                                **Mr. Guenther Slabihoud**  
Geschaeftsfuehrender

Tel +43 1 985 95 85  
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**Organisation type**                SME  
**Participant role**                    Partner

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## Contribution to project

Collection and compilation of measurement data, their analyses and consequences.

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## Expertise

Concentrates on the following areas: measuring, electrical and control engineering. The Manager, Mr. Slabihoud, specialises in control engineering.

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## 4. Partner

**Company**                                **Uniprojekt Engineering Technisches Buero Gmbh & Co Kg**  
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1232 Wien  
Austria

Tel +43 1 667 39 20-0  
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**Contact**                                **Kr. Ing. Wolfgang Kaltenbrunner**  
Project Manager

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**Organisation type**                SME  
**Participant role**                    Partner

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## Contribution to project

Contribution in the form of engineering such as concept development, calculations, studies and consulting.

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## Expertise

25 years' experience in the technical equipment of buildings such as heating, air conditioning, cooling, low voltage current techniques, control engineering, etc.

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### 4. Partner

**Company**                      **Technisches Buero Prodingner**  
Unt. Bayerland, 4  
3542 Gfoehl  
Austria

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**Contact**                      **Dr. Karl Prodingner**  
Consultant Tb Prodingner

Tel  
Fax

**Organisation type**        SME  
**Participant role**            Partner

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## Contribution to project

Development of measuring methods and systems, climatology.

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## Expertise

Studies on heating systems and energy flow dissertation: Energy economics of heating systems - a consultation model (1986). Thermal behaviour: energy flow analysis in industries (1990-....). Control systems for alternative energy (1994-....). Ecology of heating systems.

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### 4. Partner

**Company**                      **Gutsverwaltung Feldegg**  
Schloss, Feldegg,  
4742 Pram  
Austria

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**Contact**                      **Dipl.-Ing. Georg Hanreich**  
Owner Of Gutsverwaltung Feldegg

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**Organisation type** SME  
**Participant role** Partner

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## Contribution to project

Will provide a place for the measurements of the project and look for a heating system which will help to stabilise the indoor climate.

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## Expertise

Experienced in climate-control. (The representative is the Head of the Museum's Department of the FEDERAL OFFICE FOR THE PROTECTION OF MONUMENTS AND SITES).

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## 4. Partner

**Company** **Kunsthistorisches Museum Gemaeldegalerie**  
Burgring, 5  
1010 Wien  
Austria

Tel +43 1 616 2791-4  
Fax +43 1 932 770-309

### Contact

Tel  
Fax

**Organisation type** Governm./Nat. Admin.  
**Participant role** Partner

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## Contribution to project

Condition report of paintings and other objects close to exterior walls, technical description/documentation. Assistance in the installation of the humidity/temperature sensors on the object of art measured in this project.

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## Expertise

Mrs. Maria Ranacher is a painting curator and restorer who is responsible for prevention in the paintings collection of the "KUNSTHISTORISCHES MUSEUM". The KUNSTHISTORISCHE MUSEUM is one of the oldest Austrian museums and contains a collection of 9,800 paintings.

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## 4. Partner

**Company**                      **Stiftung Ostdeutsche Galerie**  
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**Contact**                      **Mr. Michael Kotterer**

Tel

Fax

**Organisation type**              SME  
**Participant role**                Partner

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## Contribution to project

Recording of climate dates (temp./rel.humidity) with newly developed data recording equipment.Observation/documentation of room climate between exterior walls/reverse sides of paintings.These dates >our partner in Vienna for evaluation.

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## Expertise

Public art collection, which is managed by academically trained art historians. The collection consists of approximately 2,000 paintings, 500 sculptures and 30,000 examples of graphic art. During a general renovation (1989-1993) the museum was equipped with a novel climatic system. The rooms are heated by a special wall-tempering system. The minimised ventilation has only two functions: fresh air supply and relative humidity control by moisturising. The climatic system will be examined.

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## 4. Partner

**Company**                      **Nordiska Museet**  
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Sweden

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**Contact**                      **Mrs. Karin Bjorling Olausson**  
Head Of Conservation

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**Organisation type**              Governm./Nat. Admin.

**Participant role** Partner

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## Contribution to project

Measurements of temperature gradients in large museum rooms to predict local relative humidity. Aim: build a model to calculate temperature/local humidity gradients (horizontal/ vertical) in rooms in old buildings.

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## Expertise

The NORDIC MUSEUM in Stockholm is the largest museum covering cultural heritage in SWEDEN with some 1,500,000 registered artefacts. The Museum has a Research Department and employs in Stockholm about 240 employees, mainly people with an academic background. Mrs. Karin Bjoerling is a trained conservator with a degree from the ISTITUTO PER L'ARTE IL RESTAURO, Florence.

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## 4. Partner

**Company** **Skoklosters Slott**  
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**Contact** **Dr. Bengt Kylsberg**  
Head Curator

Tel  
Fax

**Organisation type** Governm./Nat. Admin.  
**Participant role** Partner

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## Contribution to project

## Expertise