



Co-funded by the  
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*Advanced Training  
on Energy Efficiency  
in Historic Buildings*

## 01\_A2 STUDY CASES



# STUDY CASES

The empirical analysis carried out on the series of actions that have been part of the project, accompanied by a review of the doctrinal and legislative principles, allows us to clarify and systematize the **key factors** that have led to different interpretations and results according to each case study.

# INTEGRATED MANAGEMENT

Best practices of **integrated management of historic heritage** that, despite being exempt from regulatory compliance of the parameters **on energy efficiency,** contribute to significant **environmental improvements** as well as a **significant reduction cost**

# INTEREST VERSUS VALUES

the joint action of the **disciplines of sustainability and heritage conservation** is a key method for optimal renewal and avoids decline:

the compatibility between **interests and values**  
looks for a result as close as possible to  
equilibrium

# CONCEPTS

concepts such as

**authenticity,**

**integrity,**

**reversibility,**

**legibility** or

**compatibility,**

linked to energy efficiency, consumption or costs,  
will assume different primacy and understanding from  
the design stage to the practical way of implementation.

# REVERSIBILITY



## ADAPTATION OF THE MAIN FLOOR OF CHARLES V PALACE

### LOCALISATION

Granada, Spain

### USE

Palace (Original)

Museum (Current)

### DATE

1527 | 2007

## ENERGY EFFICIENCY MEASURES

- Solar exposition control system
- Integral climate control system
- Photocell system
- Adaptation of the interior lighting of the room to exterior lighting conditions

# AUTHENTICITY / LEGIBILITY



## **BIBLIOTHECA HERTZIANA**

### **LOCALISATION**

Roma, Italy

### **USE**

Palace (Original)

Library and Research Institution  
(Current)

### **DATE**

1590 | 2001



## **ENERGY EFFICIENCY MEASURES**

- Construction of a central light shaft
- Radiation control system
- Reorganisation of internal spaces to improve the management of energy needs



# AUTHENTICITY vs. RECONSTRUCTION or RECONSTRUCTION as AUTHENTICITY?



## RECONSTRUCTION ŽITNA KUĆA

### LOCALISATION

Karlovac, Croatia

### USE

Department Store

Bank (Current)

### DATE

1805 | 2010

## ENERGY EFFICIENCY MEASURES

- Reconstruction of building with new materials but in the “original spirit”
- Energy efficiency measures were implemented introducing energy efficient facade and heating system



# AUTHENTICITY and RECONSTRUCTION



## THE RECONSTRUCTION OF THE DUBROVNIK NATURAL HISTORY MUSEUM

### LOCALISATION

Dubrovnik, Croatia

### USE

Residential use

Dubrovnik Natural History Museum

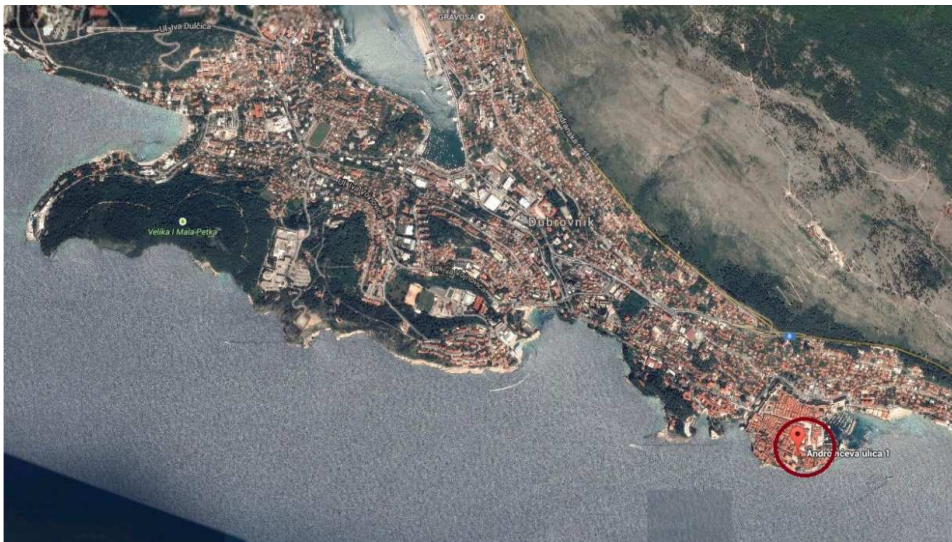
(Current)

### DATE

16/17-th century | 2013

### ENERGY EFFICIENCY MEASURES

- Installation heating/cooling system
- Installation of LED lighting
- Changing windows and doors with high energy conductivity



# COMPATIBILITY



## REHABILITATION OF SANTO TOMAS' CONVENT

### LOCALISATION

Alcalá de Henares, Madrid, Spain

### USE

Convent (Original)

Hotel and Cultural Uses (Current)

### DATE

1603 | 2012

## ENERGY EFFICIENCY MEASURES

- High efficiency lighting system
- Solar collectors in roofs
- Integral climate control system
- Passive energy efficiency measures
- Waste water disposal
- Solar control system



# INTEGRITY



## REHABILITATION OF SANTA MARIA DE POBLET CONVENT

### LOCALISATION

Vimbodí and Poblet, Catalonia, Spain

### USE

Monastery (Original)

Monastery, Hotel and Cultural Uses  
(Current)

### DATE

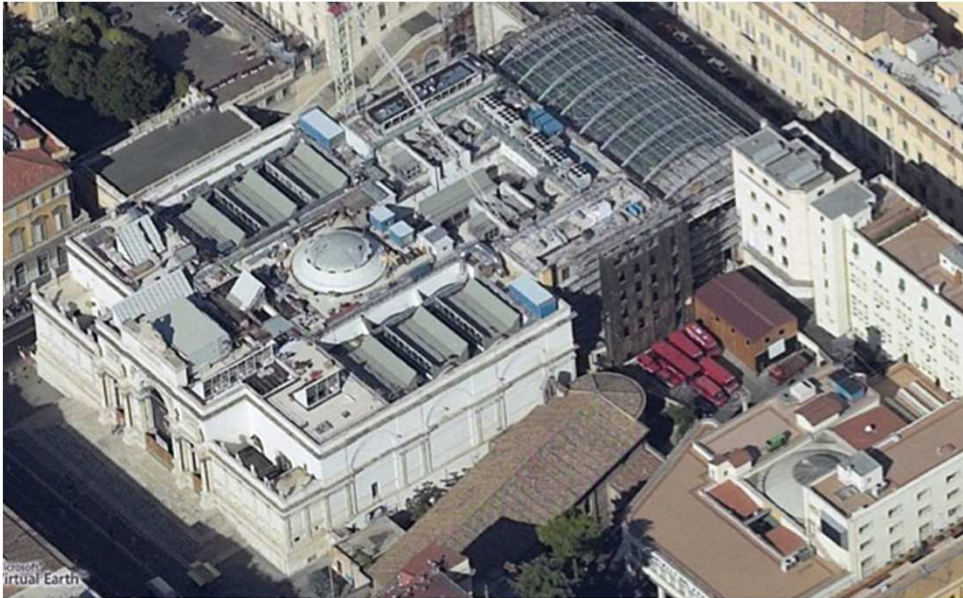
1149



## ENERGY EFFICIENCY MEASURES

- Biomass system to produce energy
- Solar collectors for hot water
- Photovoltaic panels to produce energy
- Passive energy efficiency measures
- Waste water disposal system

# LEGIBILITY



## **PALAZZO DELLE ESPOSIZIONI**

### **LOCALISATION**

Roma, Italy

### **USE**

Exhibition Hall (Original)

Exhibition Hall and Cultural Centre  
(Current)

### **DATE**

1883 | 2003

## **ENERGY EFFICIENCY MEASURES**

- Solar control system
- Sliding blinds
- Heat pumps
- Natural ventilation



# COMPATIBILITY



## **GHELLA OFFICES**

### **LOCALISATION**

Roma, Italy

### **USE**

Office Building (Original)

Office Building (Current)

### **DATE**

1973 | 2011



## **ENERGY EFFICIENCY MEASURES**

- Rooftop pergola formed of vacuum-sealed pipes for heating system
- Artificial lighting system regulated by sensors.
- Solar pipes
- Photovoltaic system