



VIOLET

Interreg Europe



European Union
European Regional
Development Fund

PRESERVE TRADITIONAL BUILDINGS THROUGH ENERGY REDUCTION

Cyprus Energy Agency
Christina Palochi
Soulla Karra

04 May 2022 |

Conference: “Effectiveness of Environmental Urban policies
to Improve Resources Efficiency in Cyprus”, Nicosia



OBJECTIVES

«Promotion of renewable energy sources and sustainable transport, improvement of energy efficiency, and contribution to the mitigation and adaptation to climate change»



Cyprus
Energy
Agency

VISION

«To contribute actively to the conservation of energy resources, the protection of the environment and the improvement of the quality of life»

VIOLET Interreg Europe [2017-2022]



Funding:

- European Regional Development Fund

Purpose:

- Preservation of traditional and heritage buildings
- Integration of energy efficiency and cultural heritage into policy planning, management and monitoring through interregional cooperation
- Endorsement of a building culture, sympathetic to modern requirements of energy use and carbon emissions, while preserving European architectural heritage
- Impact on sustainable development, growth and preservation of European cultural heritage

Project Partners:

- South-East Regional Development Agency
- European Institute for Innovation - Technology
- Cyprus Energy Agency
- The Public Enterprise for Social Housing and Refurbishment in Andalusia
- Municipality of Middelburg
- Local Energy Agency of the Bordeaux metropolis and the Gironde

OBJECTIVES

Project Objectives – Expected Outputs:

- **Communities of Practices (CoP)**, the grouping of regional stakeholders following a multisector approach; stakeholder involvement in all phases of the project implementation;
- **Interregional exchange events**, including study visits;
- **Joint SWOT analysis** (Identification of Strengths, Weaknesses, Opportunities, Threats)
- **Good practices** identified at regional level, in synergy with the Communities of Practices, and then exchanged among the partners
- **Action Plans** developed in cooperation with Communities of Practices, defining concrete actions to improve policy for energy efficiency in traditional buildings
- **24 Staff Members** and **50 Regional Stakeholders** with increased capacity and skills on implementing the requirements for energy efficiency in traditional buildings (including Universities, Public Authorities etc)



CYPRUS' ACTION PLAN

VIOLET PROJECT

Cyprus Energy Agency

- **ACTION 1:** Recommendations for the EU level recast Energy Performance of Buildings Directive (EPBD)
- **ACTION 2:** Issuance of Energy Performance Certificates for heritage buildings
- **ACTION 3:** Issuance of a Guidebook for the energy upgrade of heritage buildings
- **ACTION 4:** Interdisciplinary Seminars for professional training

ACTION PLAN



The 4 identified actions had to be interconnected and complementary to each other.

ACTION 1:

Recommendations for the amendment of the Energy Performance of Buildings Directive (EPBD) on National Level

The Amendment of the Law on the Regulation of the Energy Efficiency of Buildings (13th of November 2020) refers now directly to the energy performance of Heritage Buildings, as a result of the local activities within the framework of VIOLET.

More specifically these changes include the following:

[a] Buildings that have been declared as listed buildings or as ancient monuments cease to be exempted from the obligation to have an Energy Performance Certificate (EPC), when sold or rented.

[b] Buildings that have been declared as listed buildings or as ancient monuments can be exempted from the minimum energy efficiency requirements only if their owners present the proposed energy upgrade interventions and supply adequate documentation for exemption, to the Competent Authorities.

Legislation in Cyprus for the energy efficiency of buildings

The non-alteration of the building's character remains the main issue. However, modern building solutions and new construction systems, facilitate actions for improved energy efficiency and indoor conditions in Preserved Buildings and Ancient Monuments enhancing their use and therefore, their preservation.

The aim is to give the opportunity (and indirect incentives) to find new solutions and approaches, by increasing know-how in this area.

It is important that each building is evaluated as unique, and no standardized solutions should be applied.

ACTION 2: Issuance of Energy Performance Certificates for heritage buildings

The Case Study Buildings were selected based on pre-defined criteria:

- **geographic dispersion of buildings** in all climatic zones of Cyprus
- inclusion of **public and private buildings** [different uses]
- inclusion of buildings with a **variety in sizes**
- inclusion of buildings which **are under protection status or not**
- inclusion of **buildings which have, and have not, implemented energy upgrade measures**
- inclusion of **buildings with variation in construction techniques**
- owner's and architect's intention to cooperate and provide information

ACTION 2:

Issuance of Energy Performance Certificates for heritage buildings

Categories of selected buildings:

---> A. Residences (restored or not-restored):

Being used as primary or occasional residences and no energy efficiency measures were implemented. [Total: 3 case studies]

---> B. Restored Residences:

Being used as primary or occasional residences and energy efficiency measures were implemented. [Total: 5 case studies]

---> C. Restored not Residential Buildings:

Being used as public or other buildings and energy efficiency measures were either implemented or not. [Total: 6 case studies]

Category B - Case Study: Residence in Agios Andrea, Nicosia

© Antonia Theodosiou

Σχέδιο/Βάση Κ.Α.Π 164/2009 & Κ.Α.Π 39/2014

MOORESOFT FGD-Engine v2 (8/8/2014 v1.4.1)

ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΕΝΕΡΓΕΙΑΚΗΣ ΑΠΟΔΟΣΗΣ ΚΤΙΡΙΟΥ

Φ/ΣΧ.: 21/460402 ΤΜΗΜΑ: 26 ΤΕΜΑΧΙΟ:

Ταχ.Κώδικας: 1101
 Επαρχία: Λευκωσία
 Δήμος/Κοινότητα: Δήμος Λευκωσίας
 Κατηγορία Έργου: Κατοικία
 Η πιστοποίηση έγινε: Μετά την κατασκευή
 Αριθμός Πιστοποιητικού: 11001005151005510001
 Ημερομηνία έκδοσης: 26-09-2019
 Ισχύς πιστοποιητικού μέχρι: 26-09-2029



ΥΠΟΥΡΓΕΙΟ
ΕΝΕΡΓΕΙΑΣ
ΕΜΠΟΡΙΟΥ &
ΒΙΟΜΗΧΑΝΙΑΣ

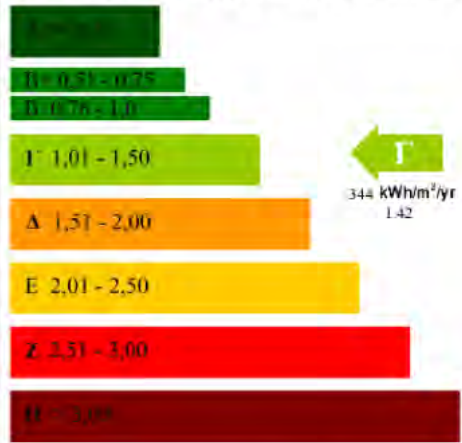
Το παρόν πιστοποιητικό αποτελεί μια ένδειξη της Ενεργειακής Απόδοσης για το συγκεκριμένο κτίριο. Περιλαμβάνει την καταναλωτική ενέργεια για σκοπούς θέρμανσης και ψύξης του κτιρίου, για παραγωγή ζεστού νερού χρήσης, για εξοπλισμό, για φρεσκάρισμα του κτιρίου, υπολογισμένα βάσει της συνήθους χρήσης του κτιρίου. Η Ενεργειακή Απόδοση του κτιρίου εκφράζεται ως η πρωτογενής ενέργεια που καταναλώνεται ανά τετραγωνικό μέτρο ωφέλιμης επιφάνειας πατώματος ανά έτος (kWh/m²/yr).

Στοιχεία Ειδικευμένου Εμπειρογνώμονα

Όνομα:
 Αρ. Εγγραφής στο Μητρώο:

Ενεργειακή Απόδοση Κτιρίου kWh/m²/yr

Ψηλή Ενεργειακή Απόδοση - Χαμηλό Λειτουργικό Κόστος



Εκπομπές Διοξειδίου του Ανθρακα CO₂ kgCO₂/m²/yr

Πολύ φιλικό προς το περιβάλλον



Καθόλου φιλικό προς το περιβάλλον

Χαμηλή Ενεργειακή Απόδοση - Ψηλό Λειτουργικό Κόστος



Σημείωση: Η συνολική ετήσια κατανάλωση πρωτογενούς ενέργειας στο κτίριο είναι: 351 kWh/m²/yr. Η κατανάλωση ενέργειας από συμβατικές πηγές ενέργειας είναι: 344 kWh/m²/yr και από ΑΠΕ είναι: 7 kWh/m²/yr.



Listed ground floor urban house in Nicosia, in a very good condition. It has been restored in order to be used as a permanent residence. Energy upgrade measures were applied to the roof, floor, frames and electromechanical installation.

Scenario	Description	Primary Energy Consumption kWh/m ² /year	EPC Category	Primary Energy Savings kWh/m ² /year
-	Current EPC	344	C	N/A
1.	With high performance systems	218	B	+126 (+37%)
2.	Without roof insulation	483	D	-139 (-40%)

Category C - Case Study: Community Offices in Pera Orinis

Εκδόσεις βάσει: Κ.Δ.Π 164/2008 & Κ.Δ.Π 39/2014

ΜΟΔΕΛΟΣ OFT ECD-english v.2 (RHS/My v3.4)

ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΕΝΕΡΓΕΙΑΚΗΣ ΑΠΟΔΟΣΗΣ ΚΤΙΡΙΟΥ

Κοινωνικό Γραφείο 1 Πέρα Ορίνις
Ζαοβαράκη 4

Το παρόν πιστοποιητικό αποτελεί μια ένδειξη της Ενεργειακής Απόδοσης για το συγκεκριμένο κτίριο. Περιλαμβάνει την κατανάλωση ενέργειας για σκοπούς θέρμανσης και ψύξης του κτιρίου, για παραγωγή ζεστού νερού χρήσης, για κλιματισμό, για φωτισμό του κτιρίου, υπολογισμένα βάσει της συνήθους χρήσης του κτιρίου. Η Ενεργειακή Απόδοση του κτιρίου εκφράζεται ως η πρωτογενής ενέργεια που καταναλώνεται ανά τετραγωνικό μέτρο ωφέλιμης επιφάνειας πατώματος ανά έτος (kWh/m²/yr).



ΥΠΟΥΡΓΕΙΟ
ΕΝΕΡΓΕΙΑΣ
ΕΜΠΟΡΙΟΥ &
ΒΙΟΜΗΧΑΝΙΑΣ

Στοιχεία Ειδικευμένου Εμπτερογνώμονα

Όνομα:

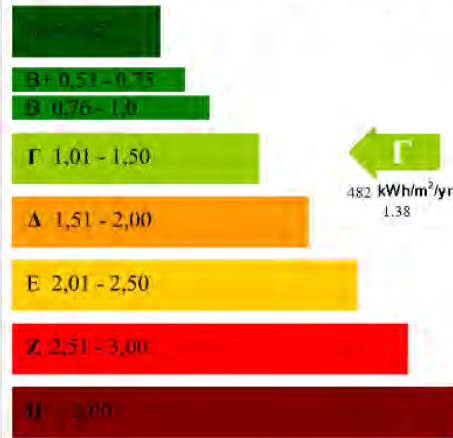
Αρ. Εγγραφής στο Μητρώο:

Φ/ΣΧ: 30/1227/01 ΤΜΗΜΑ: 1 ΤΕΜΑΧΙΟ: 185

Ταχ.Κώδικας: 2650
Επαρχία: Λακωνία
Δήμος/Κοινότητα: Πέρα
Κατηγορία έργου: Μη Κατοικία
Η πιστοποίηση έγινε: Μετά την κατασκευή
Αριθμός Πιστοποιητικού: 32001003151005812101
Ημερομηνία έκδοσης: 26-09-2019
Ισχύς πιστοποιητικού μέχρι: 26-09-2029

Ενεργειακή Απόδοση Κτιρίου kWh/m²/yr

Ψηλή Ενεργειακή Απόδοση - Χαμηλό Λειτουργικό Κόστος



← Γ
482 kWh/m²/yr
1.38

Εκπομπές Διοξειδίου του Ανθρακίου CO₂ kgCO₂/m²/yr

Πολύ φιλικό προς το περιβάλλον



← CO₂
141.42 kgCO₂/m²/yr
Καθόλου φιλικό προς το περιβάλλον

Χαμηλή Ενεργειακή Απόδοση - Ψηλό Λειτουργικό Κόστος

0 kWh/m²/yr Συναλκτικές Ενεργειακές Ανάγκες kWh/m²/yr

Ανανεώσιμες Πηγές Ενέργειας

Συμβατικές Πηγές Ενέργειας

Σημείωση: Η συνολική ετήσια κατανάλωση πρωτογενούς ενέργειας στο κτίριο είναι: 482 kWh/m²/yr.
Η κατανάλωση ενέργειας από συμβατικές πηγές ενέργειας είναι: 482 kWh/m²/yr
και από ΑΠΕ είναι: 0 kWh/m²/yr

Αρμόδια Αρχή για την τήρηση και διατήρηση του Μητρώου Πιστοποιητικών Ενεργειακής Απόδοσης Κτιρίων είναι η Υπηρεσία Ενέργειας του Υπουργείου Ενέργειας, Εμπορίου και Βιομηχανίας.



Community Offices in Ancient Monuments in Pera Orinis. Energy efficiency / upgrade measures have been taken during their restoration by the Department of Antiquities.

Scenario	Description	Primary Energy Consumption kWh/m ² /year	EPC Category	Primary Energy Savings kWh/m ² /year
-	Current EPC	482	C	N/A
1.	Without roof insulation	677	D	-195 (-40%)
2.	Without 2 nd row of window frames with double glazing	495	C	-13 (-3%)
3.	Without LED lighting	525	D	-43 (-9%)
4.	With high performance systems	291	B	+191 (40%)

ACTION 3: Issuance of Guidebook for the energy upgrade of heritage buildings

Ενεργειακό Γραφείο Κύπρου

Οδός: Λεύκωνος 2-12, 1011 Λευκωσία

Τηλέφωνο: 22-667716

Ηλ. Ταχυδρομείο: info@cea.org.cy

Ιστοσελίδα: www.cea.org.cy

Αυτό το εγχειρίδιο ετοιμάστηκε από το Ενεργειακό Γραφείο Κύπρου στο πλαίσιο υλοποίησης του έργου VIOLET (preserve traditional buildings through Energy reduction). Το έργο VIOLET συγχρηματοδοτείται από τα Ευρωπαϊκά Ταμεία Περιφερειακής Ανάπτυξης και το Ευρωπαϊκό Πρόγραμμα Συνεργασίας Interreg Europe.

Φωτογραφία εξωφύλλου:

Αποκατάσταση οικίας στη Λευκωσία © Αντωνία Θεοδοσίου

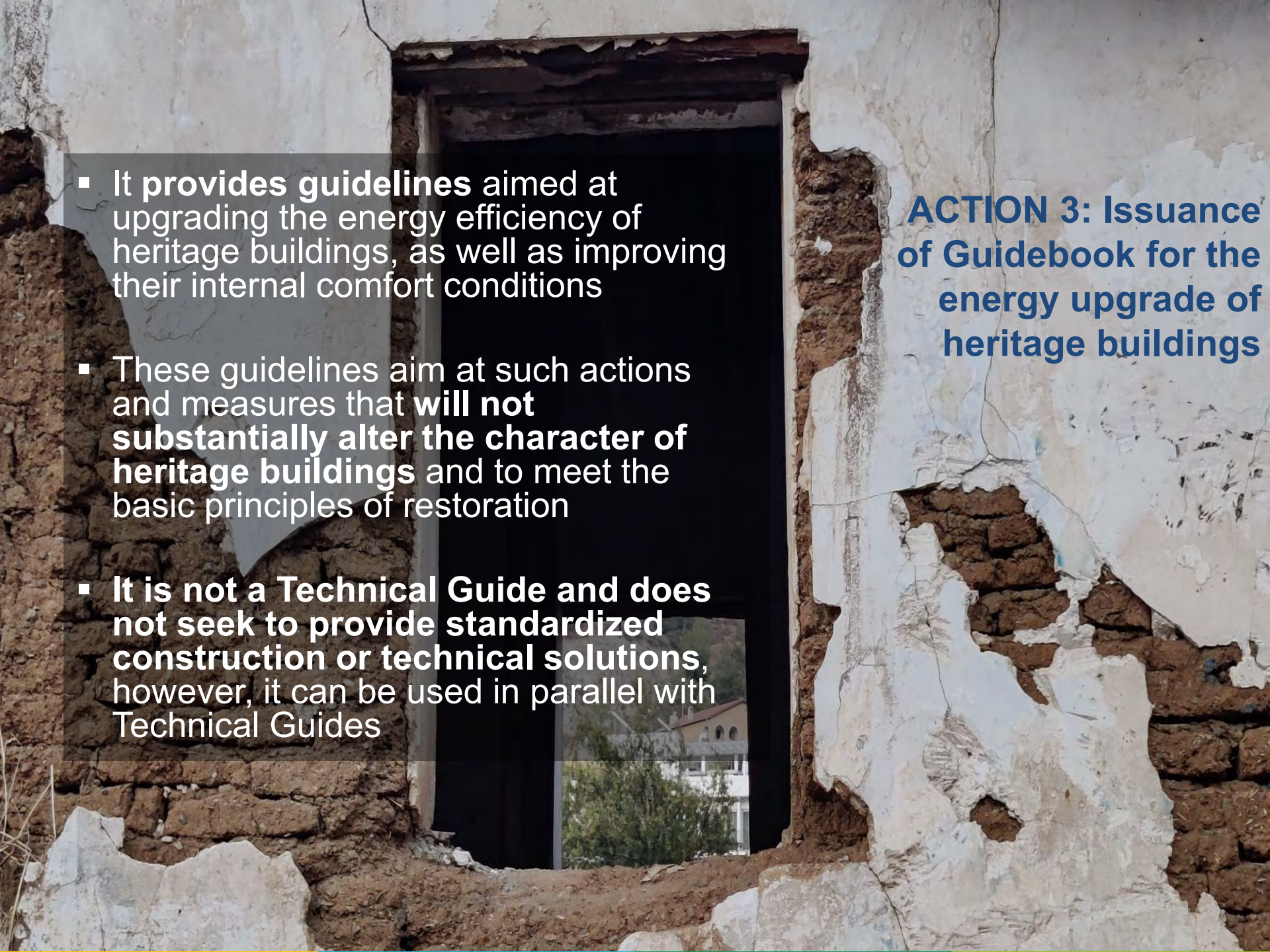
Εγχειρίδιο για την ενεργειακή απόδοση και αναβάθμιση παραδοσιακών κτηρίων

Έργο VIOLET

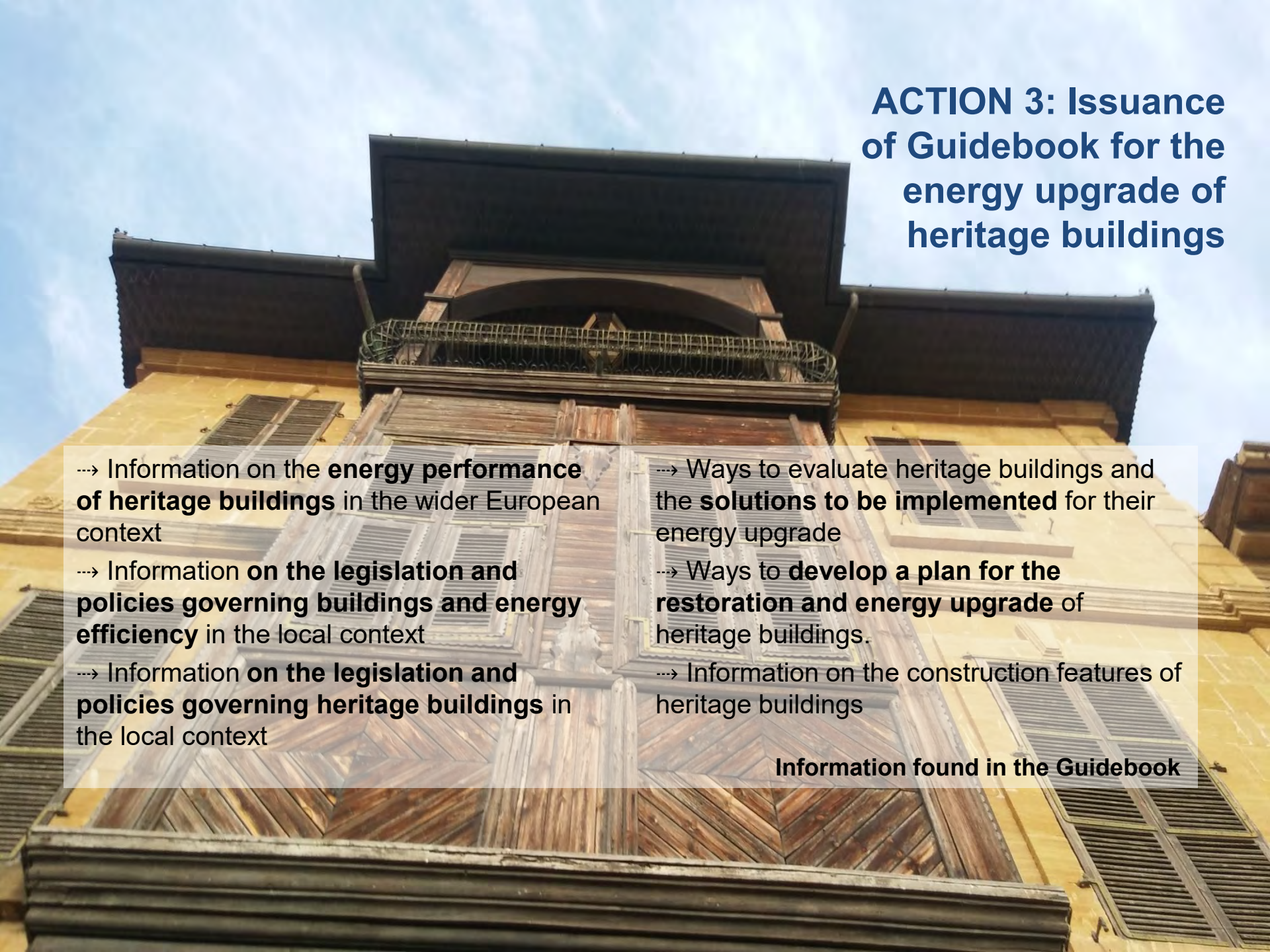


Συγγραφή και επιμέλεια κειμένων:

Μαρία Αχιλλέως - Αρχιτέκτονας Μηχανικός [Dipl.Arch.Eng., M.Sc.]
Αντωνία Θεοδοσίου - Αρχιτέκτονας [Dipl.Arch.Eng., M.Sc.] και Μηχανικός Περιβάλλοντος

- 
- It provides **guidelines** aimed at upgrading the energy efficiency of heritage buildings, as well as improving their internal comfort conditions
 - These guidelines aim at such actions and measures that **will not substantially alter the character of heritage buildings** and to meet the basic principles of restoration
 - It is **not a Technical Guide and does not seek to provide standardized construction or technical solutions**, however, it can be used in parallel with Technical Guides

ACTION 3: Issuance of Guidebook for the energy upgrade of heritage buildings

A photograph of a historic building facade, likely a heritage building, featuring a balcony with a metal railing and wooden shutters. The building is yellow and has a dark roof. The sky is blue with some clouds.

ACTION 3: Issuance of Guidebook for the energy upgrade of heritage buildings

---> Information on the **energy performance of heritage buildings** in the wider European context

---> Information on the **legislation and policies governing buildings and energy efficiency** in the local context

---> Information on the **legislation and policies governing heritage buildings** in the local context

---> Ways to evaluate heritage buildings and the **solutions to be implemented** for their energy upgrade

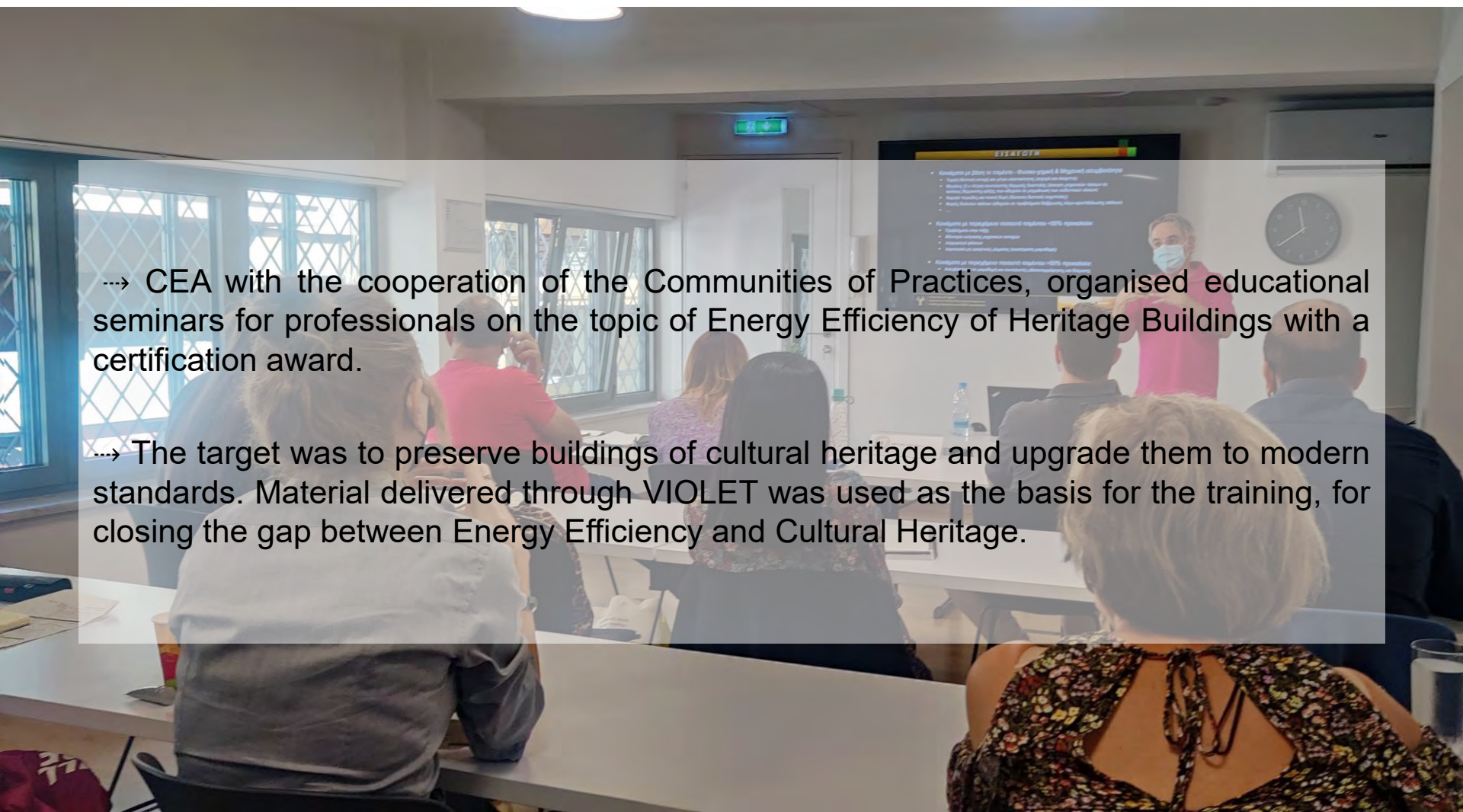
---> Ways to **develop a plan for the restoration and energy upgrade** of heritage buildings.

---> Information on the construction features of heritage buildings

Information found in the Guidebook

ACTION 4:

Interdisciplinary Seminars [courses] for professional training



→ CEA with the cooperation of the Communities of Practices, organised educational seminars for professionals on the topic of Energy Efficiency of Heritage Buildings with a certification award.

→ The target was to preserve buildings of cultural heritage and upgrade them to modern standards. Material delivered through VIOLET was used as the basis for the training, for closing the gap between Energy Efficiency and Cultural Heritage.

VIOLET 2.0

In 2021, the consortium submitted a proposal to continue its applauded work towards improving regional development policies to better face the net-zero transition and recover from the situation that brought upon by the ongoing Covid-19 pandemic.

OBJECTIVES – VIOLET 2.0

Project Objectives – Expected Outputs:

Interregional exchange workshops, to update the methodology for territorial analysis;

Joint SWOT analysis with a focus on COVID-19 impact (Strengths-Weaknesses-Opportunities-Threats);

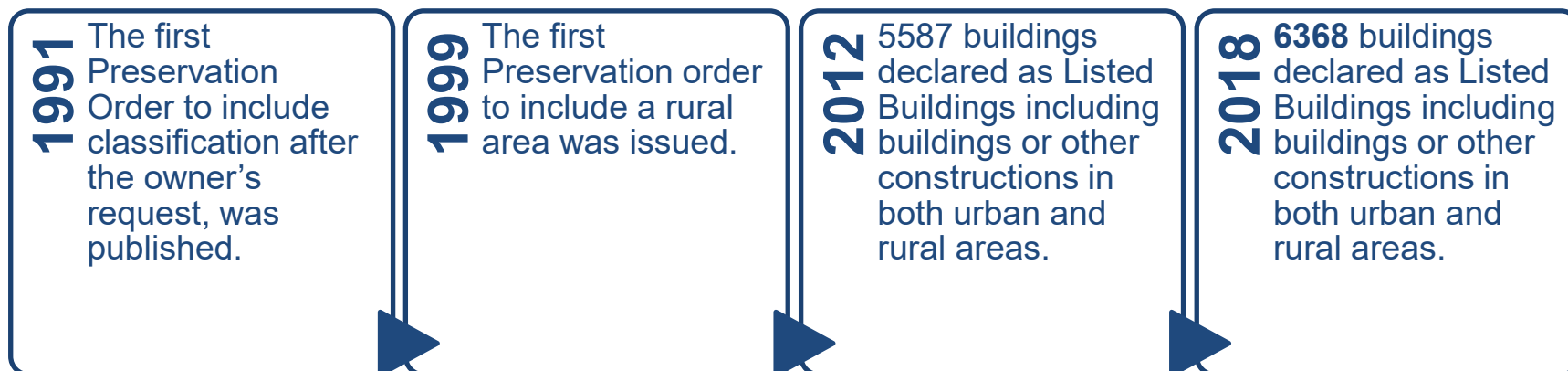
Action Plans developed in cooperation with Communities of Practices, defining concrete actions to improve policy for energy efficiency in traditional buildings;

VIOLET 2.0

- CEA is already taking part in the consultations for the finalisation of the Investment plan for the new Cohesion Policy [2021-2027] in Cyprus, managed at national level.
- The programme will include a policy objective on energy and Policy Objective 5: A Europe closer to citizens (sustainable development of urban, rural and coastal areas and local initiatives). CEA will focus on policy objective 5 to focus on sustainable historical buildings and/or traditional settlements.
- The enhancement of the 'Regulation on the Energy Performance of Buildings (Amendment) Law of 2019' set a strong foundation for further interventions in Cyprus.



Listed Buildings Incentives Framework



- In the last years the Declaration of Listed Buildings is happening at a steady pace, at about **65 - 75 buildings per year**.
- Every year, **around 350 listed buildings** are under maintenance / restoration works.
- N° of buildings financed up to date: Around **3,500 cases** exist in the Department by now.

Available funding schemes

Scheme for areas near the buffer zone/border [Σχέδιο για ακριτικές περιοχές]

Main goals:

- Revitalization of that areas
- Improving the quality of life
- Increased interest in staying in the areas near the buffer zone and attracted new residents.

Scheme “Saving – Upgrading [“Εξοικονομώ – Αναβαθμίζω” 2021-2027]

The Ministry of Energy, Commerce and Industry gives the opportunity to upgrade existing houses by providing an additional incentive in order to proceed with the measures.

The scheme covers:

- Thermal insulation,
- Replacement of windows,
- Installation of shading systems,
- Installation or replacement of solar panels, installation of photovoltaic system, air conditioners, solar energy storage batteries, automation etc.

Conclusion:

VIOLET's achievements on National Level

[a] inclusion of VIOLET and its aspirations in the **National 'Long-term renovation strategy'** for the energy upgrade and the decarbonisation of the existing building stock by 2050

[b] proposals deriving from VIOLET were submitted under the **call for the new EU Programming Period** -coordinated by the Directorate General for European Programmes, Coordination and Development

[c] proposals deriving from VIOLET have been included to the **National Strategic Plan for the Development of Troodos**, a mountainous area with many traditional settlements

[d] the Preservation Sector and the Antiquities Department, adopted **a new approach to the examination of applications for restoration works** which include measures for increased energy performance

[e] inclusion of the topic 'Energy Efficiency of heritage Buildings', to the **Priority Areas for Research, Innovation & Competitiveness of the National Governance System for Energy and Climate 2020-2030**



VIOLET Awareness Video

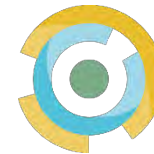
A decorative horizontal bar at the bottom of the page, divided into four colored segments: yellow, cyan, green, and light green.

Thank you!

VIOLET
Interreg Europe



European Union
European Regional
Development Fund



Cyprus
Energy
Agency

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