



Inspiring good practices: a database to trigger energy efficient renovations of historic buildings

eurac
research

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REDay2019 - Deep Energy Renovations: Already All Around Us





ENERGY EFFICIENT HISTORIC BUILDINGS

280

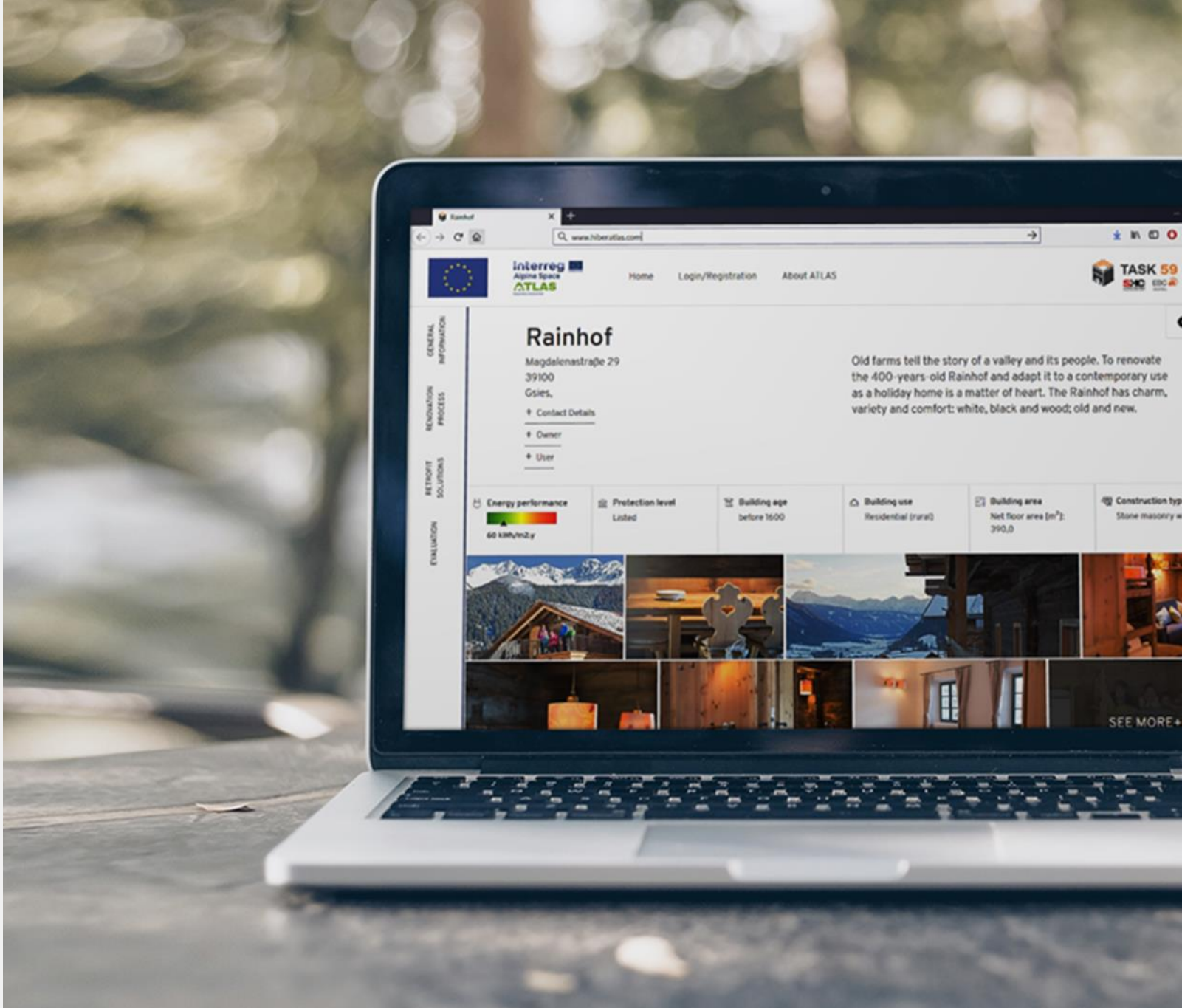
CITY OF TRIESTE 2050K





A BEST PRACTICE DATABASE FOR **ENERGY EFFICIENT RENOVATION OF HISTORIC BUILDINGS**

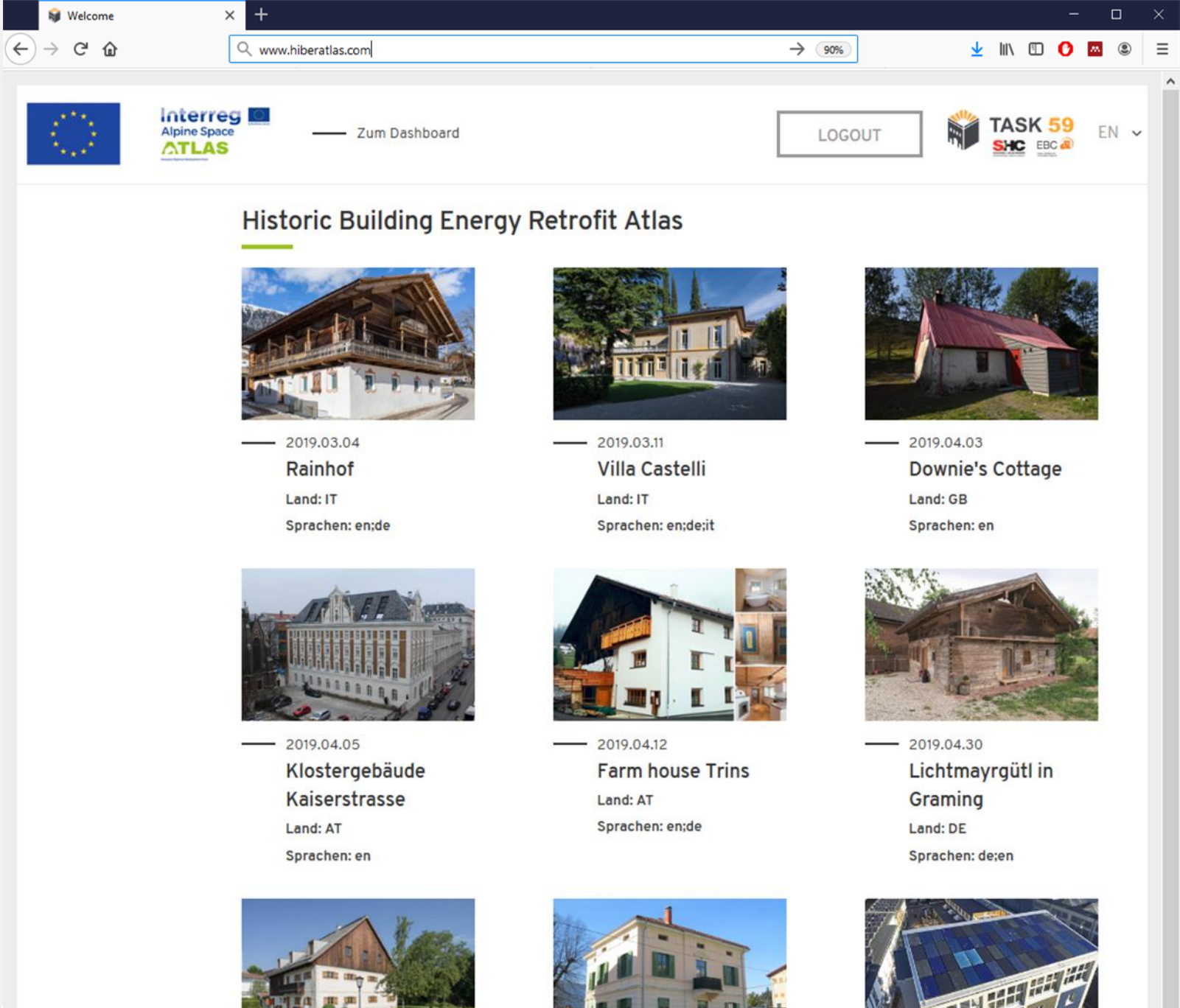
The Historic Building Energy Retrofit Atlas compiles cases of building renovation that are exemplary both in terms of heritage conservation and energy efficiency in order to inspire and foster energy retrofits.





WHAT is documented?

Any building of historic and/or cultural value **independent of the level of protection** is considered - from medieval buildings over buildings from the 1920s to post WWII architecture.





WHAT is documented?

The basic requirements for best-practices are

- ✓ Implementation of the project **completed**
- ✓ Renovation of the **whole building**
- ✓ **Significant reduction** of energy consumption (towards “lowest possible energy demand”)
- ✓ Evaluation of the **heritage compatibility** of the solutions
- ✓ Available **documentation** of technical solutions

www.hiberatlas.com

Zum Dashboard

LOGOUT

EN

Historic Building Energy Retrofit Atlas

Image	Date	Name	Land	Sprachen
	2019.03.04	Rainhof	IT	en;de
	2019.03.11	Villa Castelli	IT	en;de;it
	2019.04.03	Downie's Cottage	GB	en
	2019.04.05	Klostergebäude Kaiserstrasse	AT	en
	2019.04.12	Farm house Trins	AT	en;de
	2019.04.30	Lichtmayrgütl in Graming	DE	de;en



HOW is it documented?

Second level of detail data and information

1. **images of the building and key figures of the intervention**
2. a description of the context and the rationale behind the solutions adopted
3. the different retrofit solutions implemented
4. evaluation of the intervention in terms of energy efficiency, internal climate, cost and environmental impact.

Website screenshot for Rainhof project on www.hiberatlas.com.

Navigation: Zum Dashboard, LOGOUT, EN

Project Details:

- Rainhof**
Magdalenastraße 29
39100
Gsies,
+ Contact Details
+ Owner
- Description:** Old farms tell the story of a valley and its people. To renovate the 400-years-old Rainhof and adapt it to a contemporary use as a holiday home is a matter of heart. The Rainhof has charm, variety and comfort: white, black and wood; old and new.

Key Figures:

Energy performance	Protection level	Building age	Building use	Building area	Construction type
60 kWh/m ² .y	Listed	before 1600	Residential (rural)	Net floor area [m ²]: 390,0	Stone masonry wall

Evaluation Images:

- Exterior view of the building in a snowy mountain landscape.
- Interior view of a dining area with wooden furniture.
- Interior view of a living area with a fireplace and wooden walls.
- Interior view of a bedroom with a wooden bed frame.
- Interior view of a bathroom with a wooden sink and mirror.
- Interior view of a living area with a fireplace and wooden walls.
- Interior view of a bedroom with a wooden bed frame.
- Interior view of a living area with a fireplace and wooden walls.

Architectural Drawings:

- Exterior elevation of the building.
- Ground floor plan.
- First floor plan.
- Second floor plan.

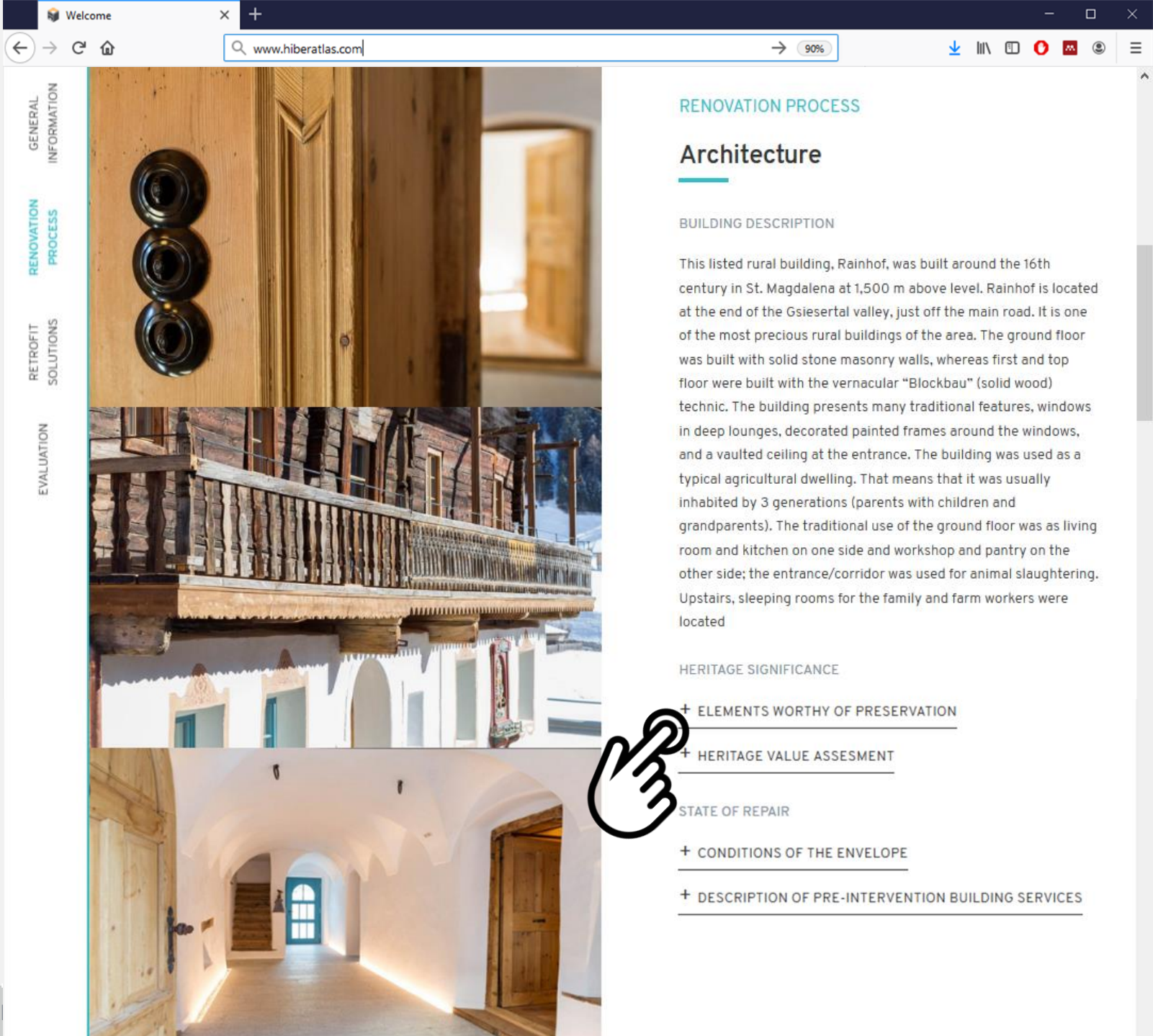
SEE MORE+



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The screenshot shows a web browser displaying the website www.hiberatlas.com. The page is titled "RENOVATION PROCESS" and "Architecture". It features a sidebar with navigation links: GENERAL INFORMATION, RENOVATION PROCESS (highlighted), RETROFIT SOLUTIONS, and EVALUATION. The main content area includes a "BUILDING DESCRIPTION" section with text about the Rainhof building, a "HERITAGE SIGNIFICANCE" section with sub-points like "ELEMENTS WORTHY OF PRESERVATION" and "HERITAGE VALUE ASSESSMENT", and a "STATE OF REPAIR" section with sub-points like "CONDITIONS OF THE ENVELOPE" and "DESCRIPTION OF PRE-INTERVENTION BUILDING SERVICES". The page also contains three images: a close-up of a wooden door with three black knobs, an exterior view of a wooden balcony on a stone building, and an interior view of a hallway with arched doorways.



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Website screenshot showing retrofit solutions for external walls and windows.

RETROFIT SOLUTIONS

External Walls

GROUND FLOOR - EXISTING STONE WALL

In most part of the ground floor (except "Stube" and "Labe") the exterior wall in natural stone is insulated from the inside with a thin layer (4-6 cm) of insulating plaster (Calcetherm 0,068)

The insulating plaster is lime-based. Unlike a insulating panel, the thin layer can follow the uneven historical wall surface in order to have a similar appearance to the original plaster.

GROUND FLOOR - EXISTING STONE WALL "STUBE"

GROUND FLOOR - EXTENSION

U-value (pre-intervention) [W/m²K]:
2,39
W/m²K

U-value (post-intervention) [W/m²K]:
0,87
W/m²K

[More Details](#)

Windows

ALL WINDOWS

Substitution of all windows. The windows were made by a furniture maker. The aim was build a two-sash window with two glazing bars each, which on the one hand fulfils the demand on energy efficiency and which is on the other hand of high aesthetic quality.

In order to preserve the original appearance of the windows in the façade, the original window was used as a model for the new window in terms of proportions and profile widths. As glazing an insulating glass unit was installed.

Existing window U-value Glass [W/m²K]:

New window U-value Frame [W/m²K]:



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GENERAL INFORMATION

RENOVATION PROCESSES

RETROFIT SOLUTIONS

EVALUATION

Energy Efficiency

ENERGY PERFORMANCE

ENERGY USE

MEASURED PARAMETERS

Internal Climate

TEMPERATURE

INDOOR AIR QUALITY

DAYLIGHT

ACOUSTIC COMFORT

ARTIFACT CONSERVATION

Costs

FINANCIAL ASPECTS

INVESTMENT COSTS

RUNNING COSTS

Environment

GREENHOUSE GAS EMISSIONS

LIFE CYCLE ANALYSIS

WATER MANAGEMENT

TRANSPORT AND MOBILITY

Footer Navigation title

Contact

Privacy

Impressum

Footer second column title

Brennerstraße 16B,

39100 Bozen,

Montag -Freitag von 8:00 bis 17:00

info@teamlau.com



WHO is documenting?

This is a **joint development** of two research projects:

- The European Interreg Alpine Space project “**ATLAS**”
- The International Energy Agency (IEA) project “**IEA-SHC Task 59**”.

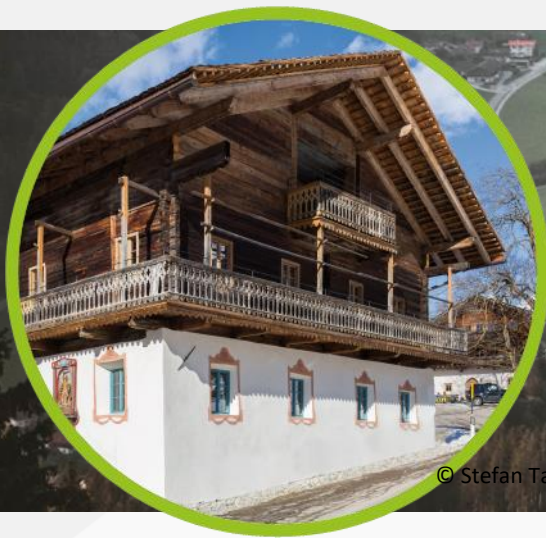
Initially, the partners of both projects are contributing with evaluated case studies. In a **second stance, owners and designers** of suitable example are invited to participate.





ATLAS | Interreg Alpine Space

Advanced Tools for Low-carbon, high-value development of historic architecture in the Alpine Space



© Stefan Taschler



© Veronika Player



© Franzl Foto BZ



Designed by Makyzz / Freepik

Develop a **knowledge base** looking at the historic building stock, existing guidelines and **good practice building renovations**

Identify, assess and optimise **conservation compatible retrofit solutions**. Develop tools to guide their application.

Support **municipalities** in the implementation of **strategies** leading to robust solutions for historic buildings

Exploit **knowledge** gained from the best practice examples to **policy, research, practitioners and general public**

THANKS FOR YOUR ATTENTION!



Interreg
Alpine Space
ATLAS
European Regional Development Fund

<https://www.alpine-space.eu/projects/eras/es/home>



TASK 59

SHC EBC
SHC EBC is a joint venture of the European Bank for Reconstruction and Development (EBRD) and the European Investment Bank (EIB).

<http://task59.iea-shc.org/>



WWW.HIBERATLAS.COM



The ATLAS Project is co-financed by the European Regional Development Fund through the Interreg Alpine Space program.