



TASK 59



AUTONOME PROVINZ
BOZEN - SÜDTIROL



PROVINCIA AUTONOMA
DI BOLZANO - ALTO ADIGE

PROVINCIA AUTONOMA DE BULSAN - SÜDTIROL

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

eurac research

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7th February 2020.

HES (Historic Environment Scotland) ENERGY EFFICIENCY SEMINAR



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HISTORIC BUILDINGS ENERGY RETROFIT

2020
CITTAO 2050K



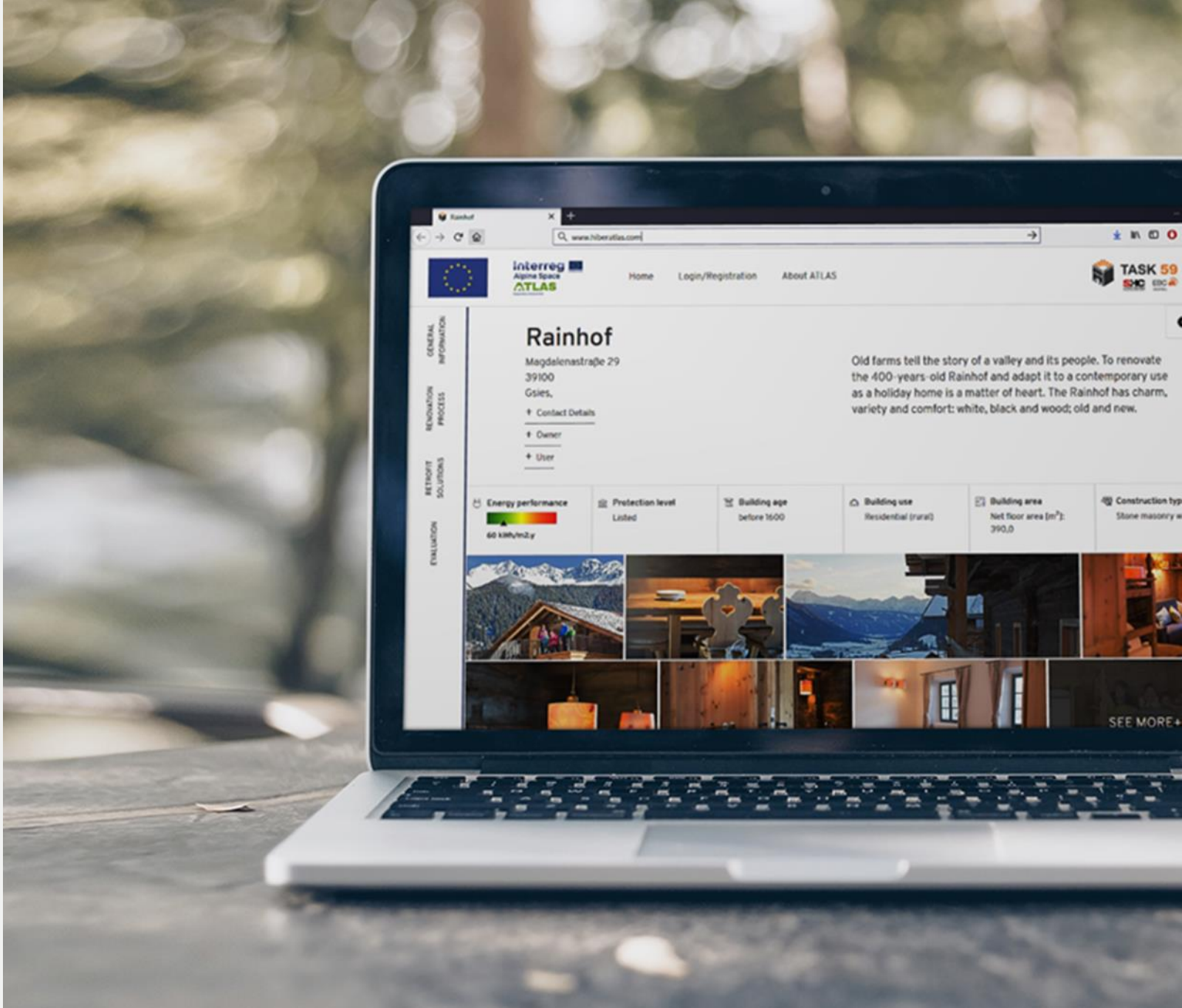
Instagram: Daily Overview

WWW.HIBERATLAS.COM

HISTORIC BUILDINGS ENERGY RETROFIT ATLAS

A BEST PRACTICE DATABASE

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.





HISTORIC buildings?

Renovating toward NZEB by bringing together design, efficiency and local use of renewable energy

According EN 16883 all buildings with elements **“worthy of preservation”**

all types & ages, not just listed/protected buildings





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SHC EBC

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Rainhof



Lichtmayrgüt
in Graming

Hof 6,
Schwarzenberg



Basilica di Santa
Maria di Collemaggio



Beim Jäger

Mercado del Val,
Valladolid



Klitgaarden

Notarjeva vila



Mariahilfer Straße



Villa Catelli



Klostergebäude
Kaiserstrasse

Osramhuset (The
Osram Building)



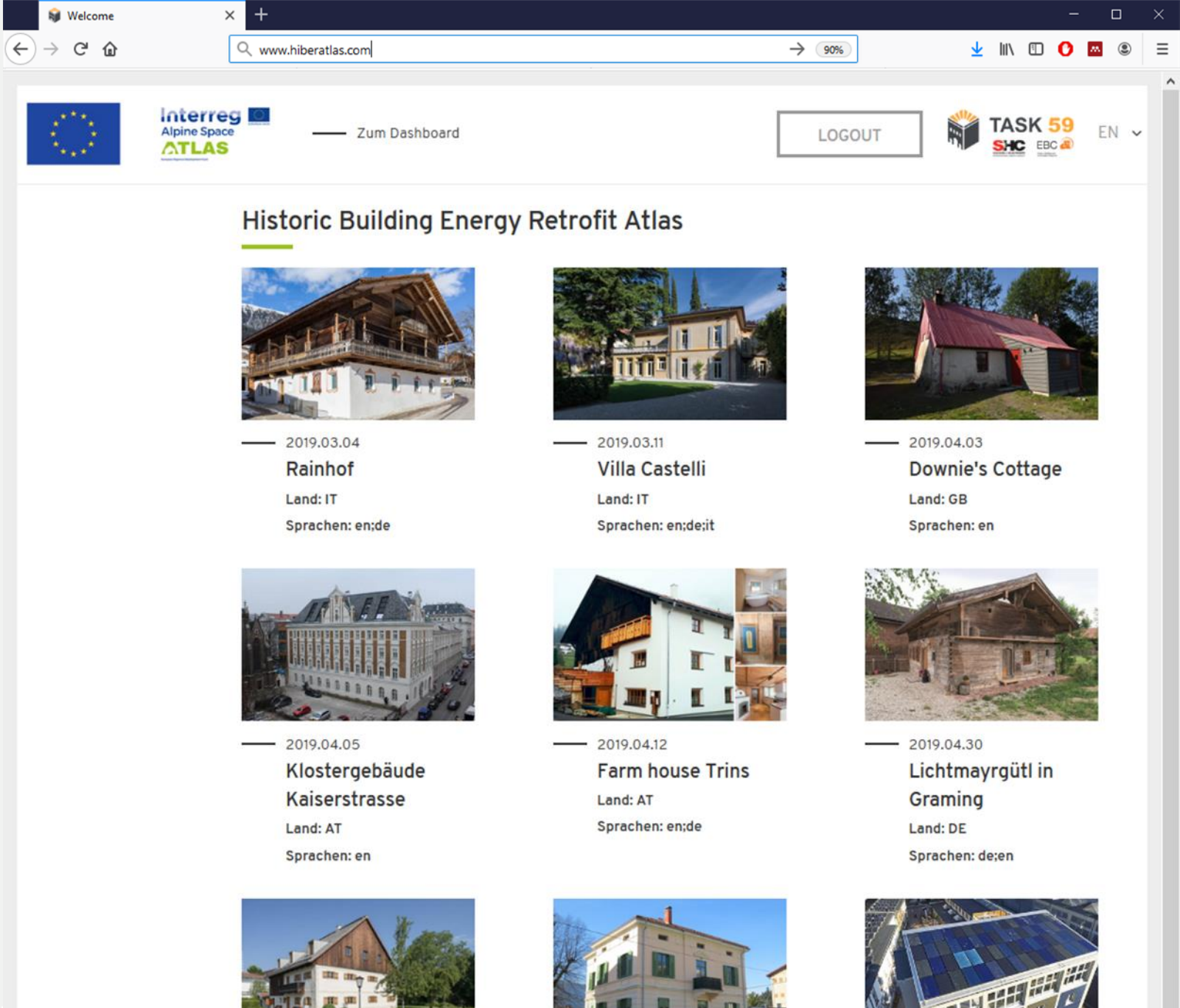
before 1600

1600-1700

1850-1899

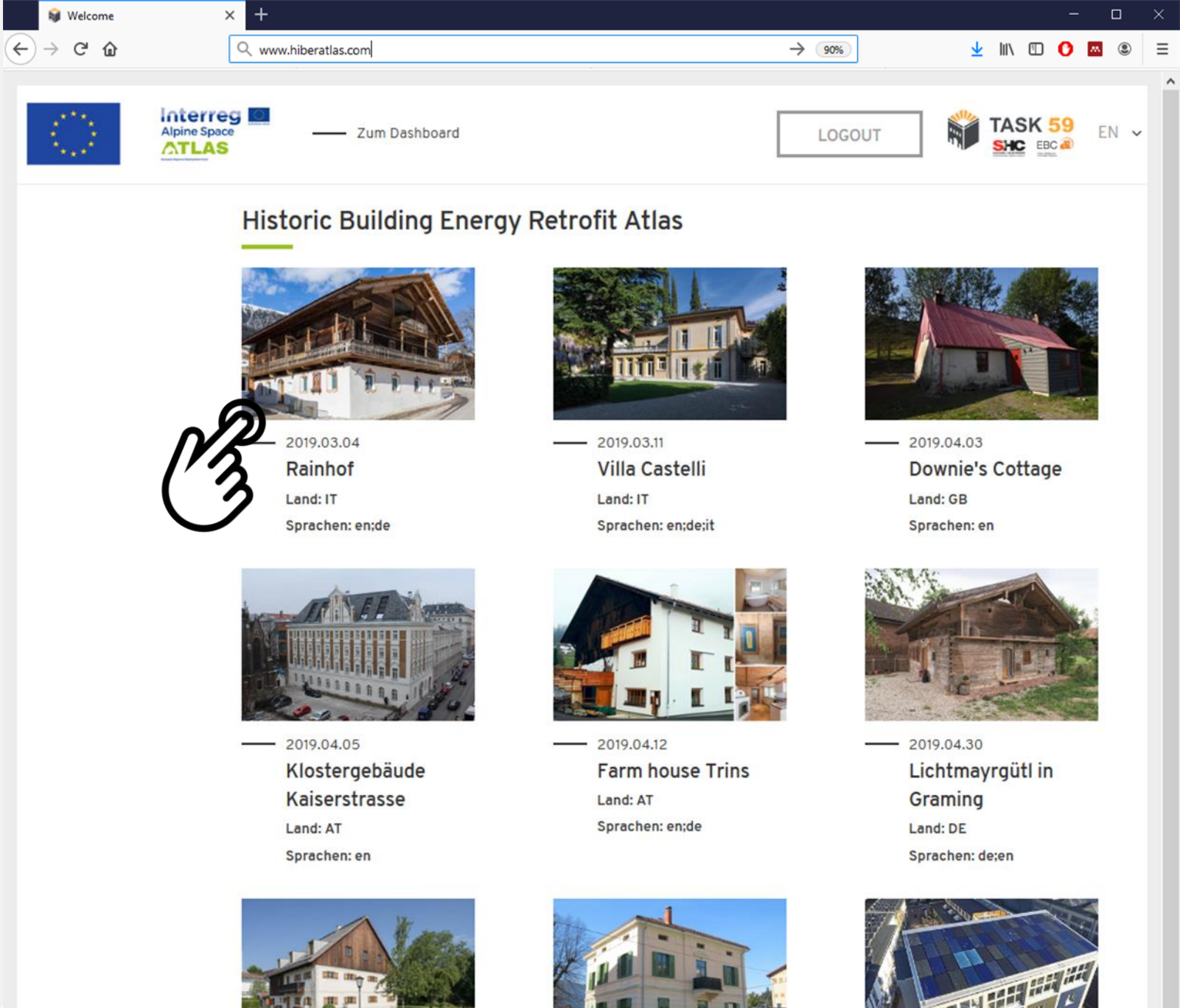
1900-1944

1945-1959



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?

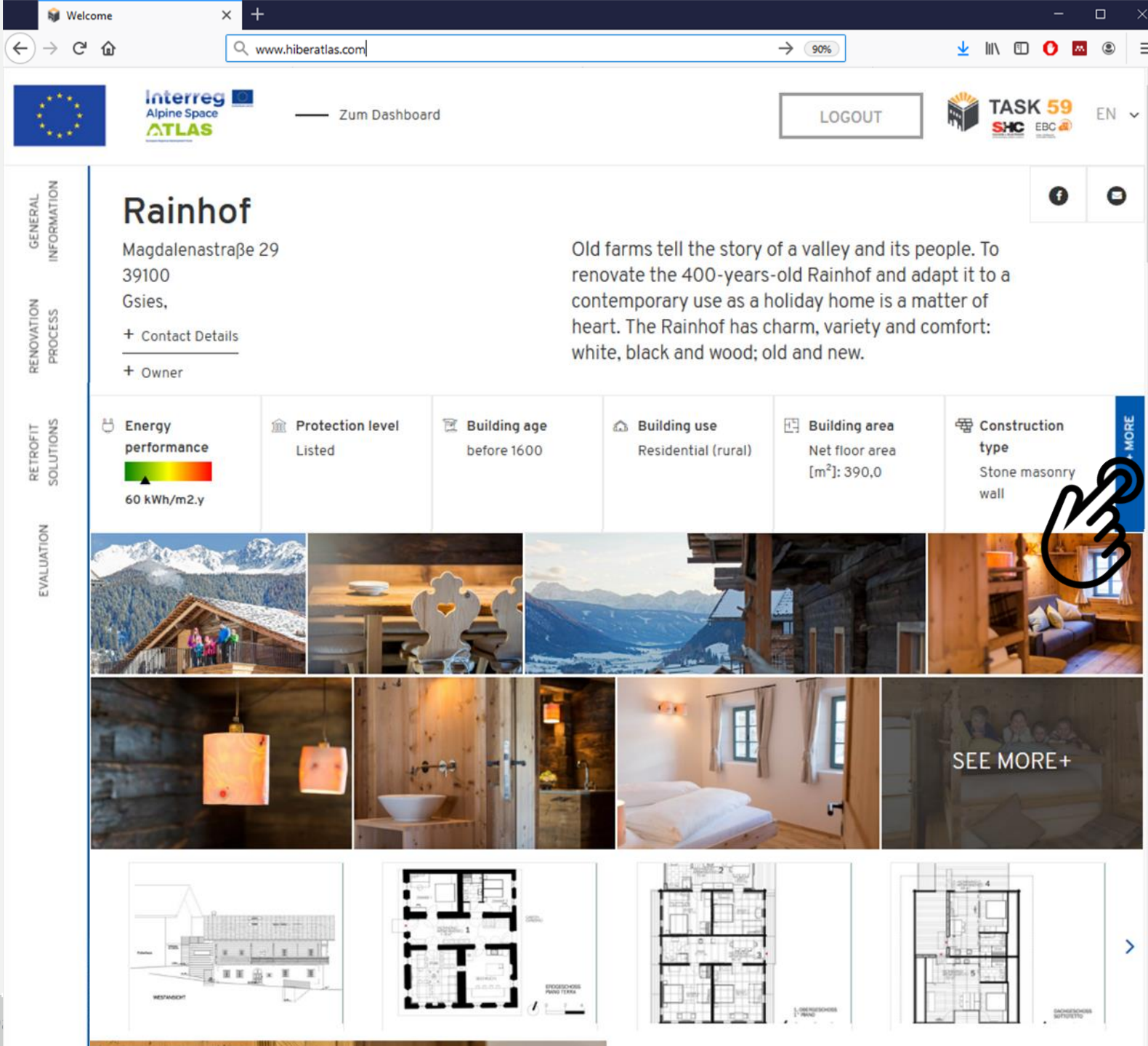
The basic requirements for best-practices are

- ✓ 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

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.



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Interreg Alpine Space ATLAS

Zum Dashboard

LOGOUT

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Rainhof

Magdalenastraße 29
39100
Gsies,
+ Contact Details
+ Owner

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.

Energy performance 60 kWh/m2.y	Protection level Listed	Building age before 1600	Building use Residential (rural)	Building area Net floor area [m ²]: 390,0	Construction type Stone masonry wall
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GENERAL INFORMATION

RENOVATION PROCESS

RETROFIT SOLUTIONS

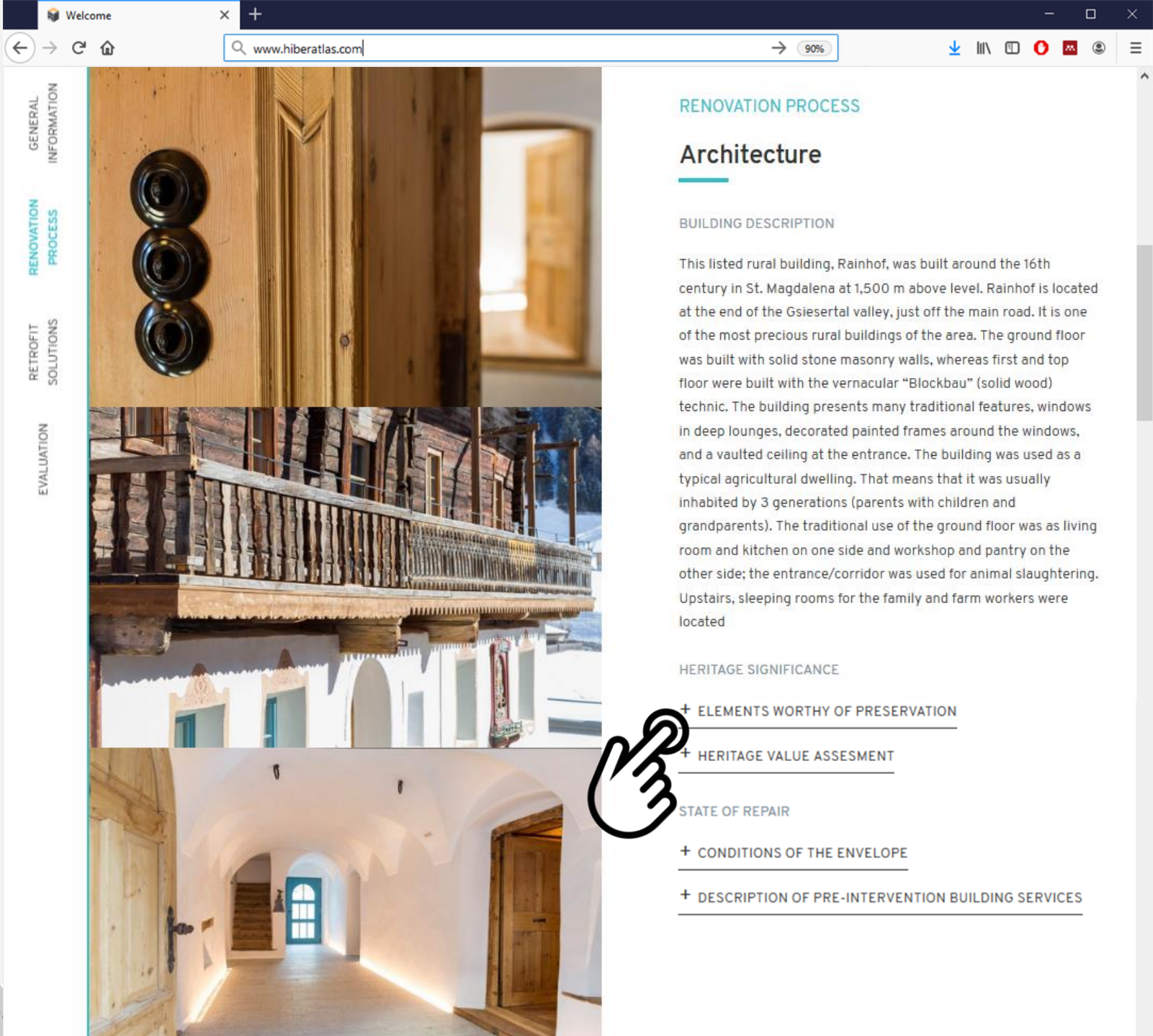
EVALUATION

SEE MORE+

HOW is it documented?

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90%

GENERAL INFORMATION

RENOVATION PROCESS

RETROFIT SOLUTIONS

EVALUATION

RENOVATION PROCESS

Architecture

BUILDING DESCRIPTION

This listed rural building, Rainhof, was built around the 16th century in St. Magdalena at 1,500 m above level. Rainhof is located at the end of the Gsiesertal valley, just off the main road. It is one of the most precious rural buildings of the area. The ground floor was built with solid stone masonry walls, whereas first and top floor were built with the vernacular "Blockbau" (solid wood) technic. The building presents many traditional features, windows in deep lounges, decorated painted frames around the windows, and a vaulted ceiling at the entrance. The building was used as a typical agricultural dwelling. That means that it was usually inhabited by 3 generations (parents with children and grandparents). The traditional use of the ground floor was as living room and kitchen on one side and workshop and pantry on the other side; the entrance/corridor was used for animal slaughtering. Upstairs, sleeping rooms for the family and farm workers were located

HERITAGE SIGNIFICANCE

- + ELEMENTS WORTHY OF PRESERVATION
- + HERITAGE VALUE ASSESSMENT

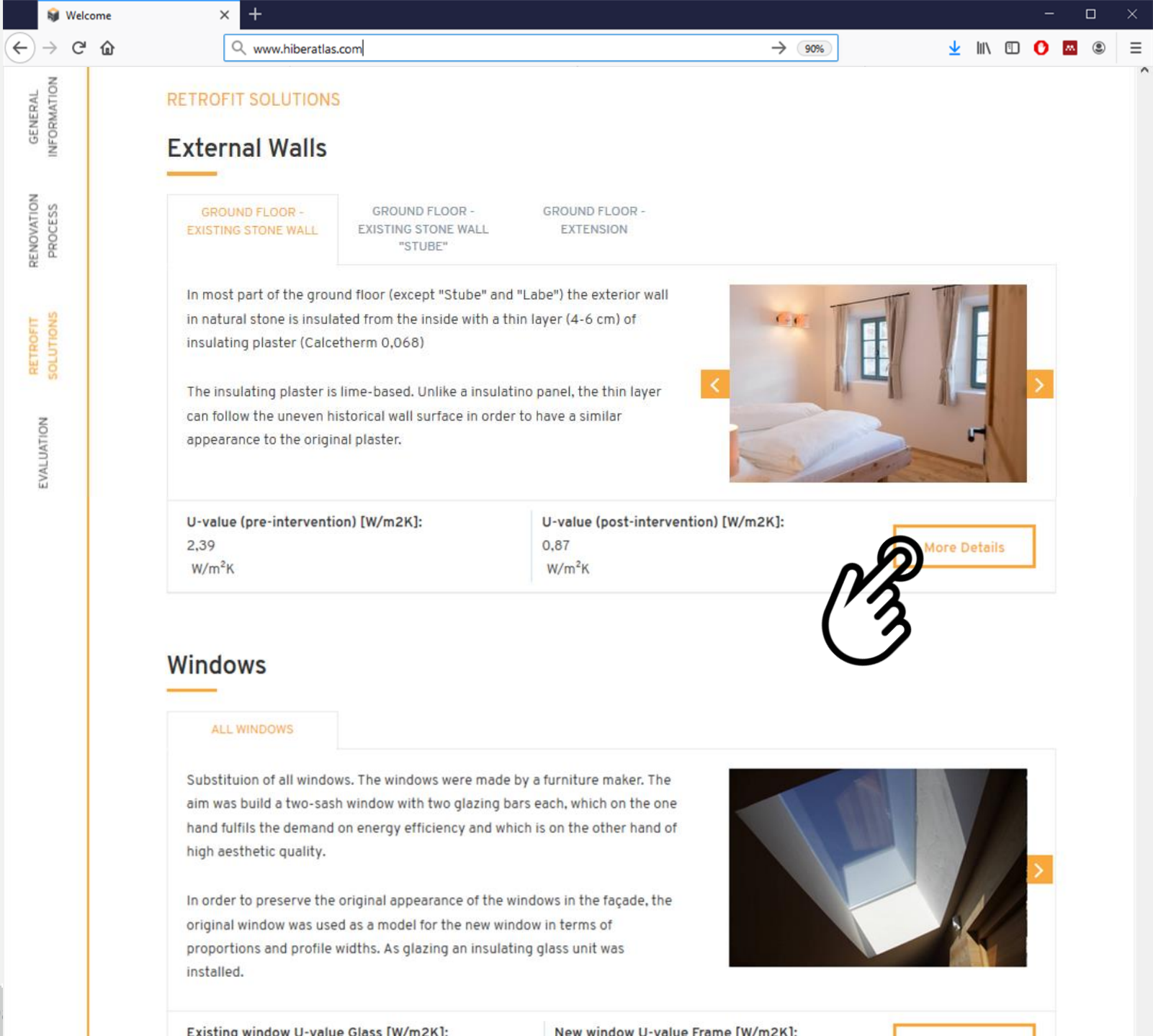
STATE OF REPAIR

- + CONDITIONS OF THE ENVELOPE
- + DESCRIPTION OF PRE-INTERVENTION BUILDING SERVICES

HOW is it documented?

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RETROFIT SOLUTIONS

External Walls

GROUND FLOOR - EXISTING STONE WALL | GROUND FLOOR - EXISTING STONE WALL "STUBE" | GROUND FLOOR - EXTENSION

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 insulativo panel, the thin layer can follow the uneven historical wall surface in order to have a similar appearance to the original plaster.



U-value (pre-intervention) [W/m²K]: 2,39 W/m²K | U-value (post-intervention) [W/m²K]: 0,87 W/m²K


[More Details](#)

Windows

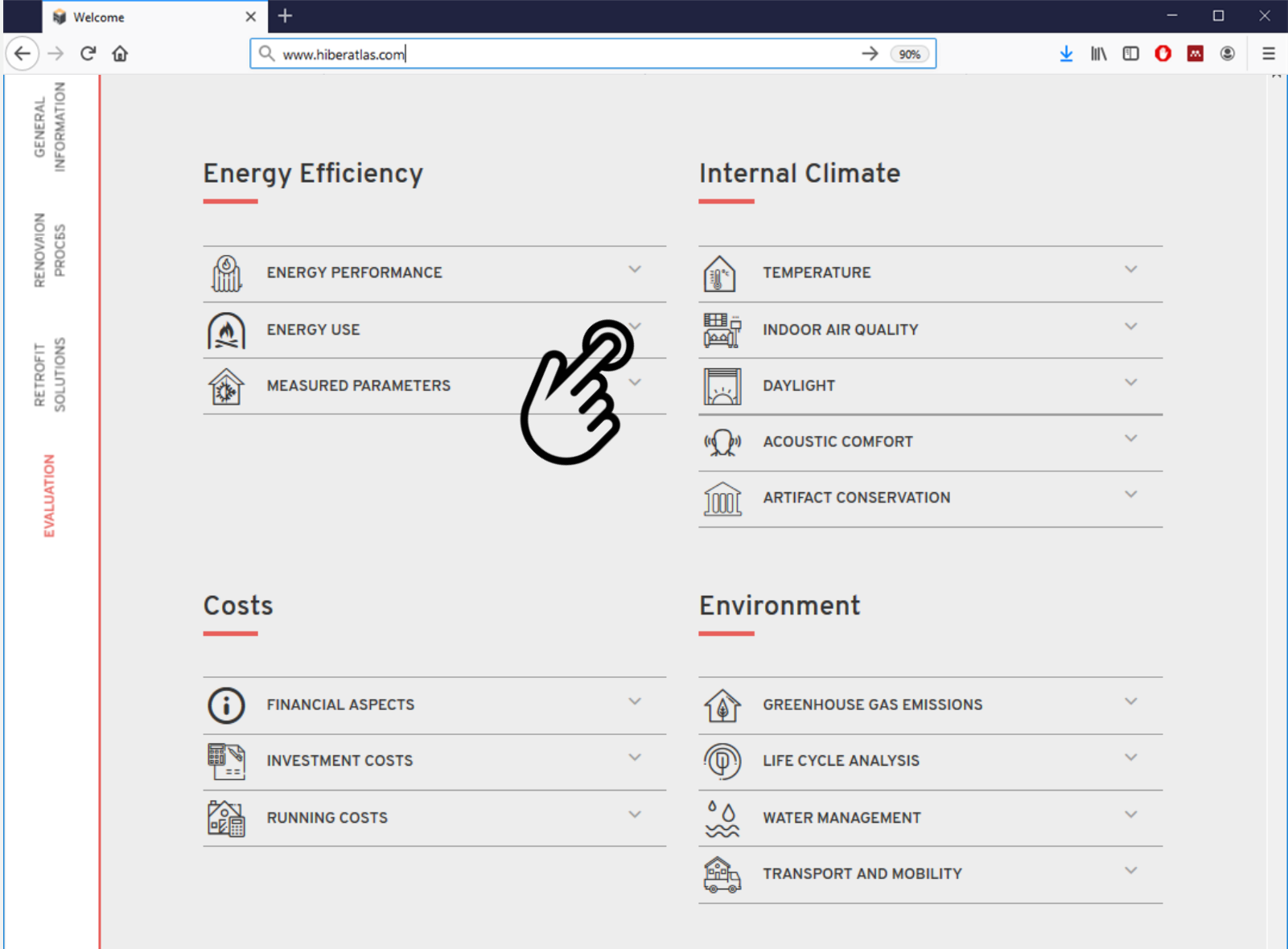
ALL WINDOWS

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]:



HOW is it documented?

Second level of detail data and information

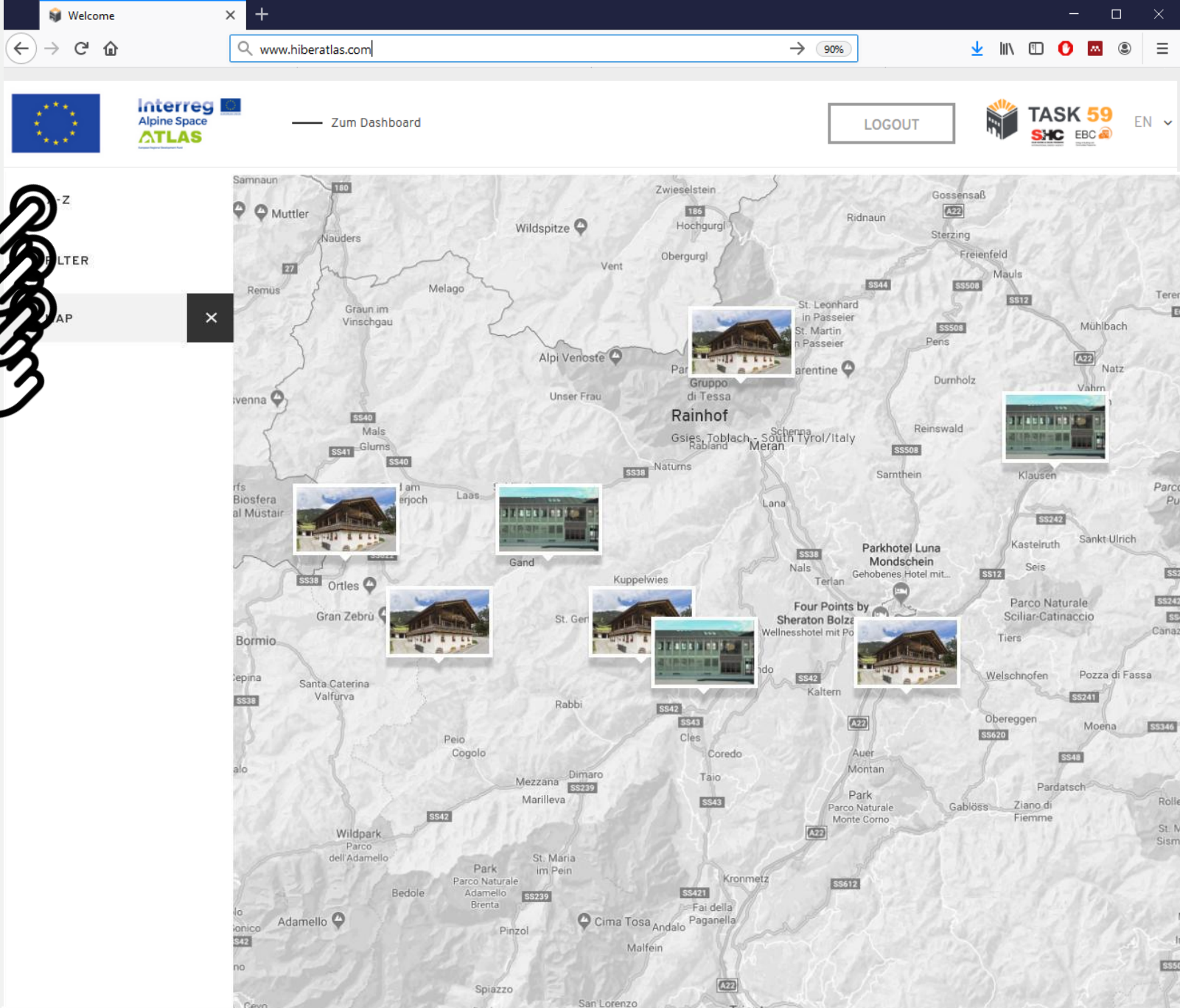
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Footer Navigation title

- Contact
- Privacy
- Impressum

Footer second column title

Brennerstraße 16B,
39100 Bozen,
Montag -Freitag von 8:00 bis 17:00
info@teamblau.com



HOW is it documented?

Allowing focusing only on those buildings that are most relevant.

According to:

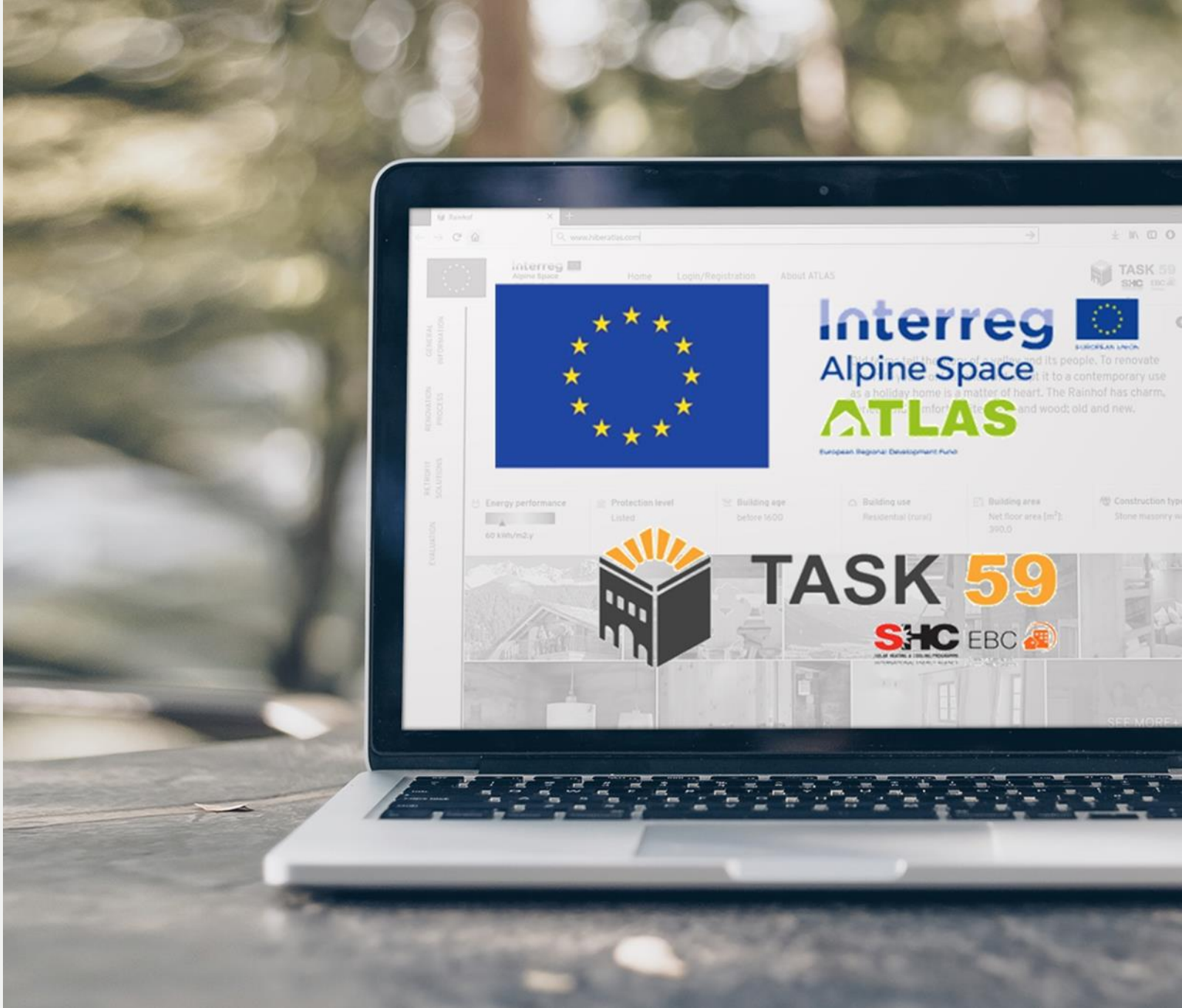
- Geographical area
- Building use
- Construction period
- Typology
- Construction material
- Solutions applied

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.





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**DO YOU KNOW A
GOOD EXAMPLE?
GET IN TOUCH!**

Task59@eurac.edu



CONNECTIVITY

Combining efforts – Linking online resources

Interreg Alpine Space ATLAS
 European Regional Development Fund
 Case studies from 11 countries
 21 partners
 21 observers
 60 case studies

100+ examples

National platforms?

TASK 59

SHC EBC
 SOLAR HEATING & COOLING PROGRAMME INTERNATIONAL

2018 ANNO EUROPEO DEL PATRIMONIO CULTURALE

STADT
 der Zukunft

IEA Task 59 | SHC programme

Deep renovation of historic buildings towards lowest possible energy demand and CO₂ emissions (NZEB)



Develop a **solid knowledge base** on how to save energy in historic buildings in a cost efficient way

Assess **replicable procedures** for multidisciplinary collaboration and promote **tools** for the implementation of EN16883

Identify and assess **conservation compatible retrofit** solutions and approached in a “whole building perspective”

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www.iea-shc.org

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



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EURAC's participation is supported by:

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