Interreg

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IPA South Adriatic

CLEAN

Workshop «EU Energy Policy and Recent Efficiency Directive Developments»

REHOUSE INTEGRATED METHODOLOGY (STRUCTURAL, ENERGETIC AND SOCIAL) FOR THE ENERGY RENOVATION IN SOCIAL HOUSING

MONICA MISCEO - ENEA

November 5th, 2024

REHOUSE

RENOVATION PACKAGES FOR HOLISTIC IMPROVEMENT OF EU'S BUILDINGS EFFICIENCY, MAXIMIZING RES GENERATION AND COST-EFFECTIVENESS

DURATION: **4 ANNI**

TOTAL COST: **10 MLEURO**

PROJECT CO-FUNDED BY THE EUROPEAN COMMISSION'S RESEARCH AND INNOVATION PROGRAMME HORIZON EUROPE.

HTTPS://REHOUSE-PROJECT.EU/

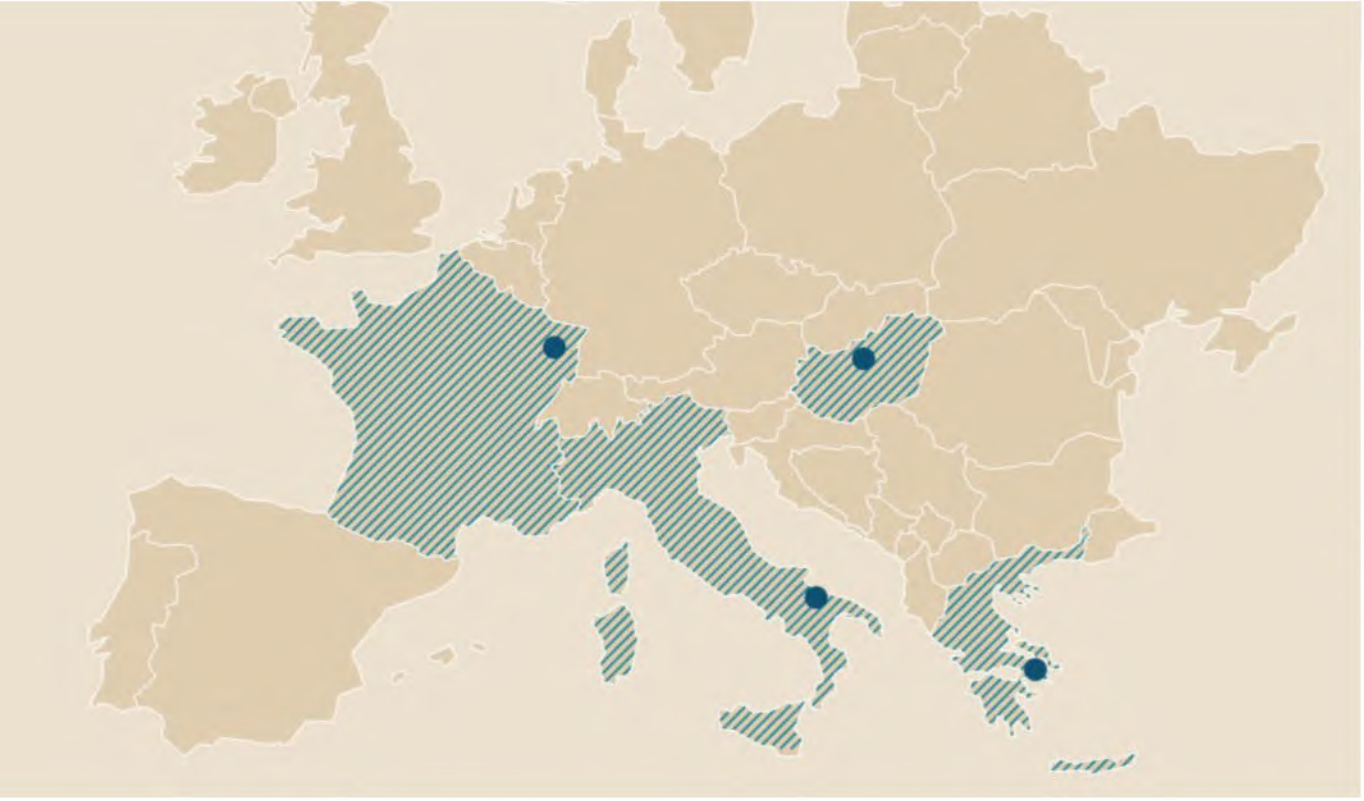
REHOUSE ACCELERATING THE EUROPEAN RENOVATION RATE

Co-funded by the European Union

REHOUSE OBJECTIVES

The focus of REHOUSE is to increase in the scope and productivity of the renovation process, the improvement of comfort and satisfaction of the building inhabitants and users, and the increased use of integrated solutions for the decentralized generation of renewable energy

→ **Inclusive people-centric social engagement strategy**



- ✓ 8 innovative and holistic solutions for efficient, cost-effective, and sustainable renovation processes , Renovation Packages (RPs)
- ✓ 4 demo sites: Greece, Hungary, Italy, France

Co-funded by the European Union

REHOUSE: 4 DEMO SITES

GREECE
Kimmeria, Xanthi

The Greek Demo refers to a student's dormitory building inside the Democritus University of Thrace (DUTH) Campus built in 1997.

FRANCE
Saint-Dié-des-Vosges

The demo-site is a residential multi-family building with 19 dwellings in 1959.

ITALY
Margherita di Savoia

This demo site is located in a marginal area of Margherita di Savoia, surrounded by a rich ecosystem and enchanting biodiversity.

HUNGARY
Faith Park Dormitory

The demo site is located in the X. district of Budapest, the capital of Hungary. In the last century, the area was mainly an industrial area, and the building itself was originally a brickworks in the past.

RP 01
Multisource heat pump

RP 02
ADBE

RP 03
Smart-Wall

RP 04
Holistic H&C renovation kit

RP 05
Multipurpose façade with bio-based insulation and BIPV

RP 06
PANOREN

RP 07
Activated cellulose thermal insulation made of wood waste

RP 08
Intelligent window system

Co-funded by the European Union

SUSTAINABLE, INCLUSIVE AND AESTHETICAL RENOVATION: EXPERIENCE FROM ITALIAN DEMO

DEMO responsible: ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development

Pilot in **Apulia Region**

Retrofitting **public social housing** is a key challenge for a more sustainable and inclusive society, alleviating energy poverty, increasing living conditions and indoor comfort quality of vulnerable households, improving dwellings and neighbourhoods

People-centric **approach in the phases of design, development and demonstration of the RPs**

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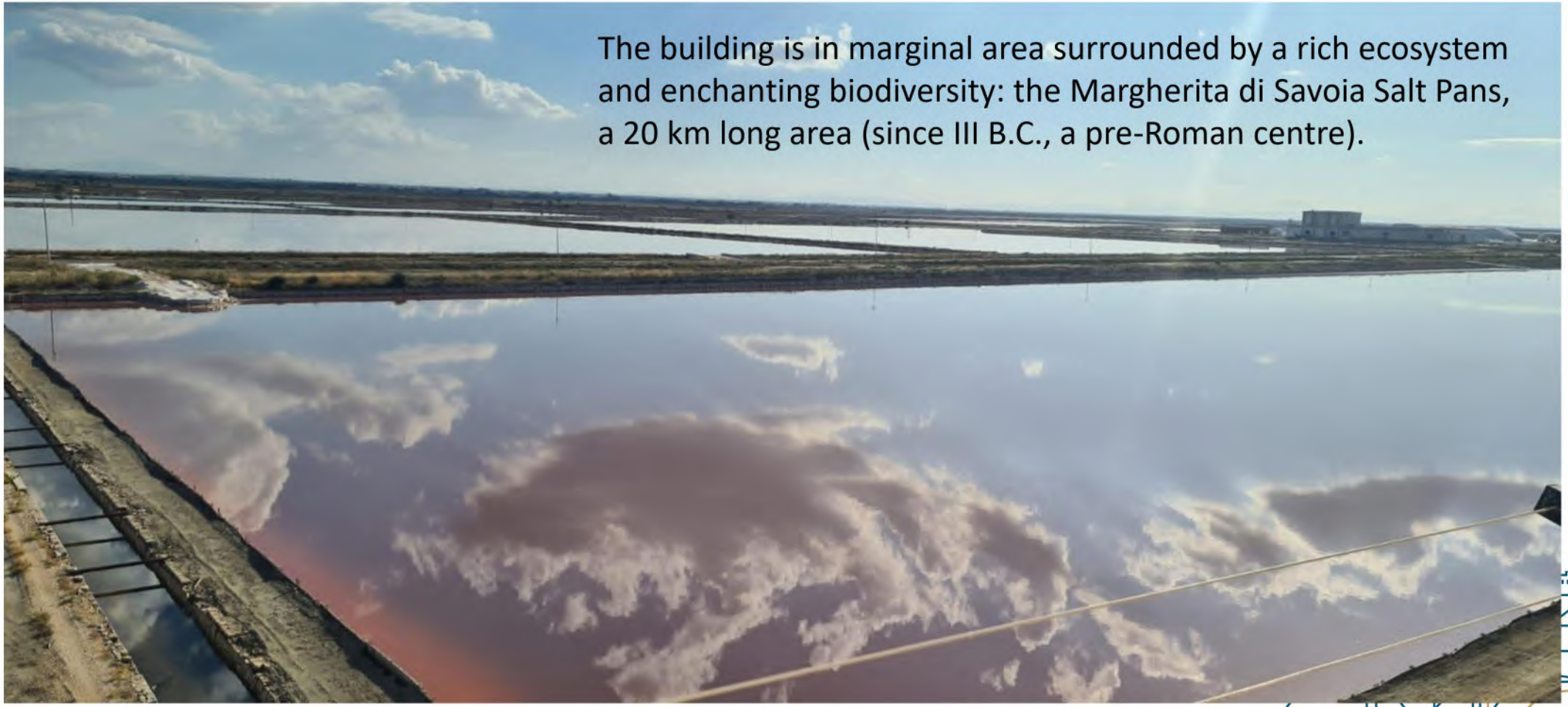
REHOUSE:

THE CURRENT BUILDING IS LOCATED ON THE EDGE OF THE MARGHERITA DI SAVOIA SALT PANS, DIRECTLY ON THE SALT PANS THAT CHANGE STATE AND COLORING DEPENDING ON THE TIME OF YEAR.



The building is in marginal area surrounded by a rich ecosystem and enchanting biodiversity: the Margherita di Savoia Salt Pans, a 20 km long area (since III B.C., a pre-Roman centre).

INTERVENTI SUL TERRITORIO:

RP 01
Multisource heat pump

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RP 03
Smart-Wall

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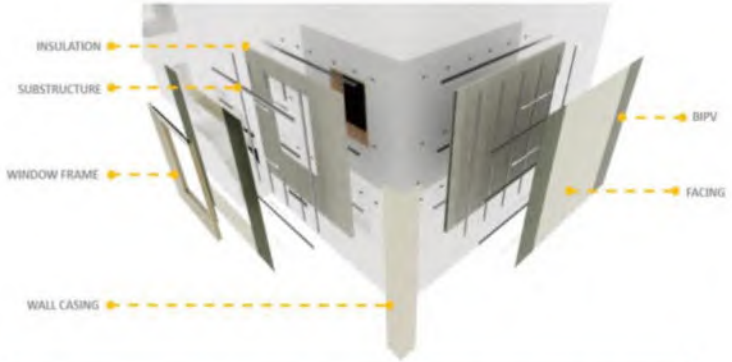
REHOUSE



FACADE: EXO-SKELETON AND PHOTOVOLTAIC FACADE TO GENERATE SUSTAINABLE ENERGY AND PROMOTE ENERGY AWARENESS IN THE COMMUNITYBIO-HEMP PANELS FOR THERMAL INSULATION

ROOFING: REINFORCEMENT AND THERMAL STORAGE

ARCHITECTURAL BARRIERS

WINDOW FRAMES: REPLACEMENT OF WINDOW ELEMENTS AND INSULATION/REPLACE MENT OF BOXES

THERMAL PLANT: BOILER REPLACEMENT AND CENTRAL PLANT

STRUCTURAL CONSOLIDATION

Co-funded by the European Union

RP#4: CENTRALIZED HOLISTIC H&C RENOVATION KIT- STEH Smart Thermal Energy Hub

RP 04

Holistic H&C renovation kit

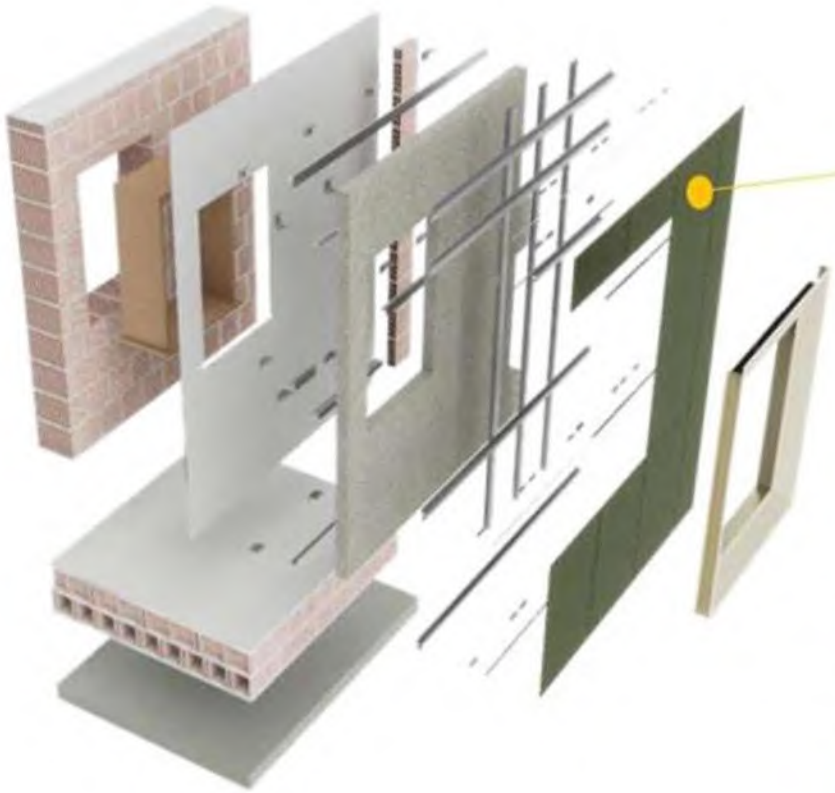
#RP5:MULTIPURPOSE FAÇADE WITH BIO-BASED INSULATION AND BIPV

Designed for building renovations that aim for sustainable improvements in overall energy efficiency, reducing installation time and tenant inconvenience

MATTONEdiCANAPA
100% naturale, sostenibile
bilancio positivo di CO2

Co-funded by the European Union

#RP5:MULTIPURPOSE FAÇADE WITH BIO-BASED INSULATION AND BIPV



SVNAGE

SOLAR BUILDING SKIN

SUNCOL

Suncol Facade

Suncol Facade substitutes traditional construction material by seamlessly integrating into any facade. Its high energy efficiency changes the way buildings work and reduces CO2 emissions making the building sustainable.

Aesthetics

Cost benefit

Energy efficiency

Customisation

SVNAGE

Colours

Limitless colour variety.

Best equilibrium between aesthetics and efficiency.

Invariability of colour over time and resistance to weathering.

High energy yield given by minimum energy loss.

Completely eco-friendly

REHOUSE:

REHOUSE: MARGHERITA DI SAVOIA

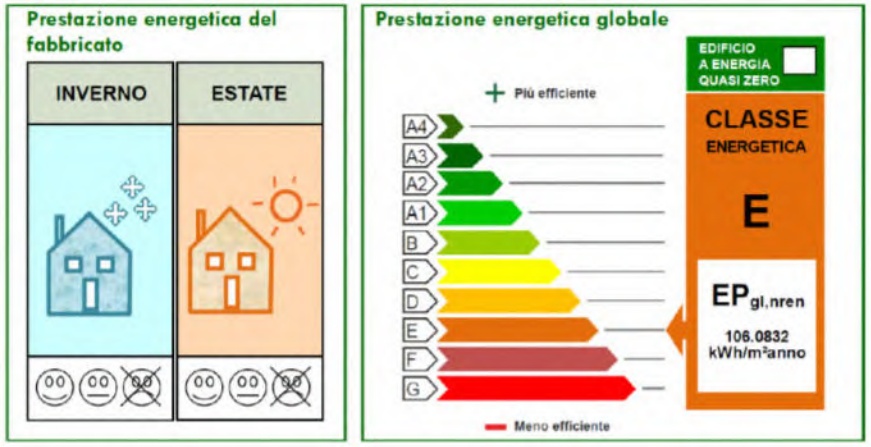
TECHNICAL DIAGNOSIS: ENERGY AUDIT

- **4 floors** above ground plus a floor on the roof dedicated to storage rooms.
- Each floor consists of two **units of 80m² and 93m²**, respectively, for a total **of eight apartments**.
- **Independent heating system**
- Five dwellings have a **condensing boiler** (Apartment (Ap.)1, Ap.2, Ap. 5, Ap. 7, Ap. 8), while the remaining units have a standard boiler
- **Three apartments** related to Aps 4, 5, and 8, respectively, have an **air conditioning system** with Heat Pump. It can also be used as heating system.
- **No thermostats or building automation and control devices** are present. The unique device is a switch to turn the heating on and off.
- **No mechanical ventilation** systems are present.
- The **EPC** (energy performance certificate) of the entire building is **G**, with a primary total energy requirement of 250.33 kWh/m²/year

REHOUSE:

INDICATORI DI PRESTAZIONE ENERGETICA

(scenario **ANTE** OPERAM con condizioni STANDARD)

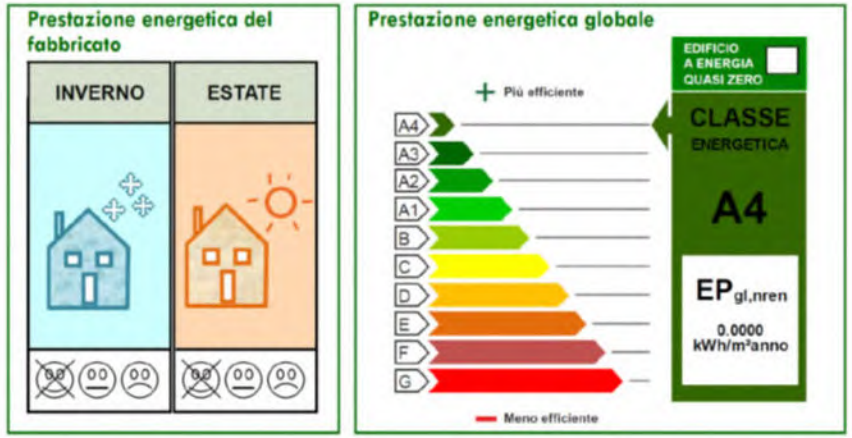


Prestazioni energetiche degli impianti e stima dei consumi di energia

	FONTI ENERGETICHE UTILIZZATE	Quantità annua consumata in uso standard	Indici di prestazione energetica globali ed emissioni
☑	Energia elettrica da rete	3'115.66 kWh	Indice della prestazione energetica non rinnovabile EPgl,nren 106.08 kWh/m² anno
☑	Gas naturale	6'920.48 Sm³	
☐	GPL		
☐	Carbone		
☐	Gasolio e Olio combustibile		
☐	Biomasse solide		Indice della prestazione energetica rinnovabile EPgl,ren 2.08 kWh/m² anno
☐	Biomasse liquide		
☐	Biomasse gassose		
☐	Solare fotovoltaico		
☐	Solare termico		
☐	Eolico		Emissioni di CO_2 20.19 kg/m² anno
☐	Teleriscaldamento		
☐	Teleraffrescamento		
☐	Altro: KeroseneAntraciteRifiuti solidi urbani		

INDICATORI DI PRESTAZIONE ENERGETICA

(scenario **POST** OPERAM con condizioni STANDARD)



Prestazioni energetiche degli impianti e stima dei consumi di energia

	FONTI ENERGETICHE UTILIZZATE	Quantità annua consumata in uso standard	Indici di prestazione energetica globali ed emissioni
☑	Energia elettrica da rete	0.00 kWh	Indice della prestazione energetica non rinnovabile EPgl,nren 0.00 kWh/m² anno
☐	Gas naturale		
☐	GPL		
☐	Carbone		
☐	Gasolio e Olio combustibile		
☐	Biomasse solide		Indice della prestazione energetica rinnovabile EPgl,ren 39.76 kWh/m² anno
☐	Biomasse liquide		
☐	Biomasse gassose		
☑	Solare fotovoltaico	11'825.94 kWh	
☐	Solare termico		
☐	Eolico		Emissioni di CO_2 0.00 kg/m² anno
☐	Teleriscaldamento		
☐	Teleraffrescamento		
☐	Altro: KeroseneAntraciteRifiuti solidi urbani		

NZEB (modello calcolato sull'intero edificio)

RTP Progettazione: arch. Tiziano Bibbò

NGT COSTRUZIONI S.R.L.

FONDI EU E FONDI REGIONALI

Deliberazione dell' Amministratore Unico

N. 23 DEL 02-03-2023

'O: INTERVENTI DI COMPLETAMENTO DEI LAVORI DEL
ΓO 'REHOUSE' NELL'AMBITO DEL PROGRAMMA DI RICERCA
AZIONE HORIZON DELLA COMMISSIONE EUROPEA - LOTTO
PITANATA N. 512 SITO NEL COMUNE DI MARGHERITA DI
BT) ALLA VIA SANCTA MARIA DE SALINIS N.8 E LAVORI DI
'IONE ESTERNA DEI LOTTI ARCA CAPITANATA NN. 512 - 533 –
APPROVAZIONE DELLA PROPOSTA DI LOCALIZZAZIONE E
) QTE

RTP Progettazione: arch. Tiziano Bibbò

REHOUSE

- Expertise in site safety during the design phase;
- Knowledge of the sustainability of building renovations according to UNI CEI EN ISO/IEC 17024 standard.
- Certification as a “BIM manager” or “BIM coordinator” according to an Italian standard UNI 11337-7-
- For the role of facilitator, which is crucial to the success of the retrofit project, the requirements included in the call are as follows:
  - relations with condominiums in order to ensure optimal collaboration with all professionals and companies involved in design, execution, workmanship and management;
  - assistance in the operational, technical and administrative management of the work and/or facility;o responsible for the training of building renovation workers and end users;
  - assistance with all necessary activities after the renovation, including termination of the contract with ARCA Capitanata;o assistance in preparing documentation containing instructions and management control tools for use by staff, including forms and operating procedures;
  - assistance in setting up document flows and documentation storage arrangements
  - management of the technical control plan including inspections to monitor the smooth progress of work;o organization and management of “As Built” documentation.

Deliberazione dell' Amministratore Unico

N. 146 DEL 18-09-2023

OGGETTO: INTERVENTI DI COMPLETAMENTO DEI LAVORI DEL PROGETTO 'REHOUSE' NELL'AMBITO DEL PROGRAMMA DI RICERCA E INNOVAZIONE HORIZON DELLA COMMISSIONE EUROPEA. - LOTTO ARCA CAPITANATA N. 532 SITO NEL COMUNE DI MARGHERITA DISAVOIA (BT) ALLA VIA SANCTA MARIA DE SALINIS N.8 E LAVORI DI SISTEMAZIONE ESTERNA DEI LOTTI ARCA CAPITANATA NN. 532 - 533 -562 - 888. AFFIDAMENTO INCARICO DI PROGETTAZIONE DEFINITIVA/ESECUTIVA, COORDINAMENTO DELLA SICUREZZA IN FASE DI PROGETTAZIONE E FACILITATORE DELL'ESECUZIONE DELL'OPERA AL RTP MANDATARIO ARCH. TIZIANO BIBBO' CIG: 9910135616

REHOUSE

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UPGRADING ENERGY OF THE BUILDING AS A DRIVER FOR URBAN REGENERATION:

RECOVERY AND REDEVELOPMENT OF DEGRADED URBAN AREAS

ARCA CAPITANATA
AGENZIA REGIONALE per la CASA e l'ABITARE
Via Romolo Caggese, 2 - 71121 Foggia

Deliberazione dell' Amministratore Unico

N. 23 DEL 02-03-2023

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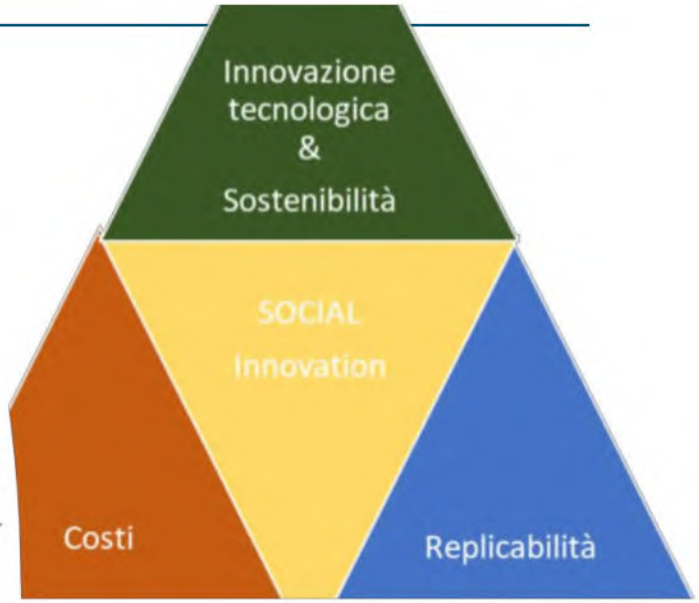

THANK YOU!

Anna AMATO

Patrizia AVERSA

Elena CANDIGLIOTA

Mario DIANA

Antonio DI MICCO

Monica MISCEO

Francesca HUGONY

Salvatore TAMBURRINO

Dipartimento Unità per l'Efficienza Energetica (DUEE)

Dipartimento Sostenibilità, circolarità e adattamento al cambiamento climatico dei Sistemi Produttivi e Territoriali (SSPT)

Vincenza Anna Maria LUPRANO

Giuseppe MARGHELLA

Anna MARZO

Saverio MAZZARELLI

Monica MISCEO

Valerio PFISTER

Angelo TATI

Concetta TRIPEPI

Tenants!