

# ACTION C.4:

Testing of the new tiles in real environment and real scale on a real-scale demonstrator building for data validation



Bolzano  
24/01/2019



HIGH ENERGY SAVINGS IN BUILDING COOLING BY ROOF TILES SHAPE OPTIMIZATION TOWARD A BETTER ABOVE SHEATHING VENTILATION



## ACER REGGIO EMILIA

- Acer Azienda Casa Emilia Romagna di Reggio Emilia is a company property of the province and municipalities
  - Manage public asset
  - Manage people living inside
  - Promote and support initiatives to support housing policies
  - Support people networks
- Reggio Emilia Province
  - Population: 535.869 thousands
  - Area: 231,56 kmq
  - 45 municipalities, administrative centre of Reggio Emilia with 172.833 thousands inhabitants

The station Mediopadana of Alta Velocità and Calatrava bridges



Office Acer  
Reggio Emilia



## **SOCIAL CONTEXT**

- New forms of poverty due to the economic crisis
- Increasing of elder, singles and immigrants population

## **THE ENVIRONMENTAL CONTEXT**

- Large housing stock of old, high energy demand and polluting buildings
- Behaviors of users are not energy savings oriented

## **ECONOMIC CONTEXT**

- “Expensive house”: unsustainable energy bills and management costs

## THE MISSION

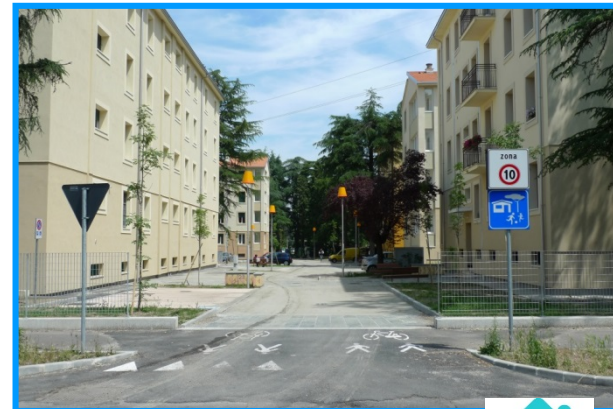
- Increase the sustainable housing offer, manage social housing extra public resources and private resources and manage services aimed at specific target: condominiums, university accommodation, cultural mediation. Stimulate the entire Housing sector's in order to reduce the costs of the house and consequently decrease the pressure on welfare
- Focus in the urban regeneration and building energy efficiency processes, dedicating strong commitment to research and experimentation.
- Operate on the Social housing market and support the municipal administrations in the implementation of housing policy

# Good practices in renovation

- **Refurbishment** of public housing stock
  - integration of EE with RES, when relevant and cost effective
  - Industrialisation of the supply chain (use of prefabricated panels for instance)
  - Testing of materials, technologies, and Techniques..
  - Adequate financing mixing loans, subsidies and contribution of tenants
  - Involvement of tenants at all stage

## ACER Reggio Emilia:innovation's activities

- Fresh on financial and esco instruments
- Powerhouse NZEB
- Herotile:High Energy savings in building cooling by ROof TILES shape optimization toward a better above sheathing ventilation (LIFE HEROTILE)
- Pro-GET-One: Anti-seismic solutions in existing buildings
- Schneider on electronic control and regulations
- Lemon : To experiment innovative financing models for social housing retrofit; To develop a new Energy Performance Tenancy Agreement ;to involve the constuctions sector with advanced technologies and materials
- CONZEB: Experimentation on NZEB in existing buildings
- Database on information and simulation on all buildings based on energy performance and economic and performance regeneration scenarios







HI  
BUILDING COOLING BY ROOF  
TILES SHAPE OPTIMIZATION  
TOWARD A BETTER ABOVE  
SHEATHING VENTILATION

Edificio a Saragozza ( Spagna)  
Installazione della tegola Herotile  
modello «portoghese»



Edificio a Cadelbosco di S. (Italia)  
Installazione della tegola Herotile  
Modello «marsigliese»

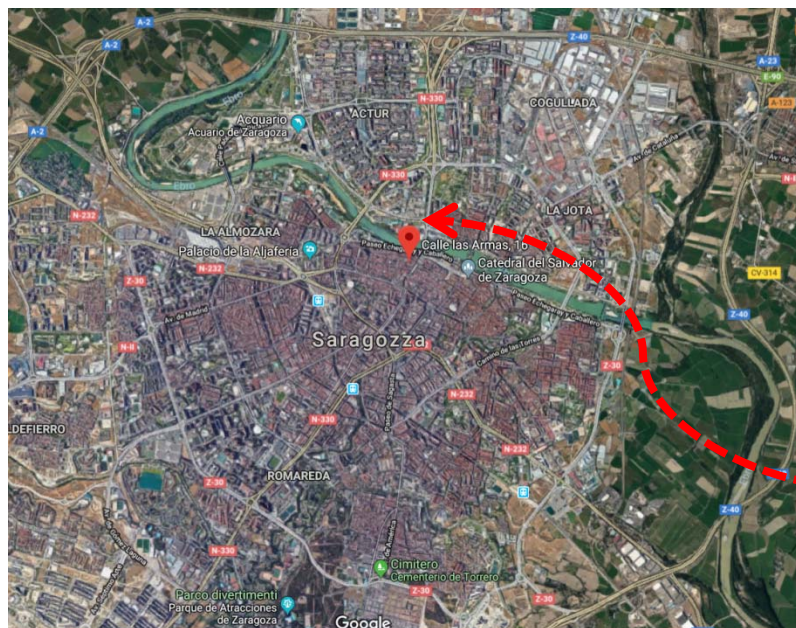




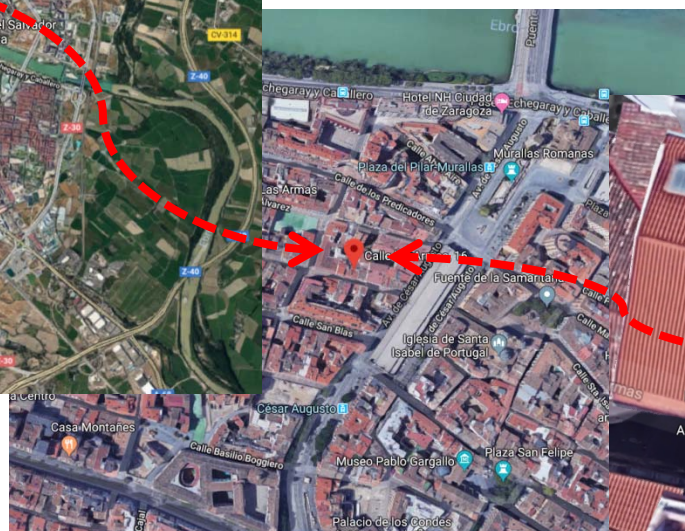
Comune di  
Cadelbosco di Sopra (RE)

## INQUADRAMENTO Edificio Saragozza (Spagna)

A similar building, managed by the **Sociedad Municipal Zaragoza Vivienda** (the Spanish social housing company approved by Acer), is currently under experimentation in Zaragoza in Spain.



### Real-scale demonstrator building with portuguese tiles in Saragozza (Spain)





## Diapositiva 8

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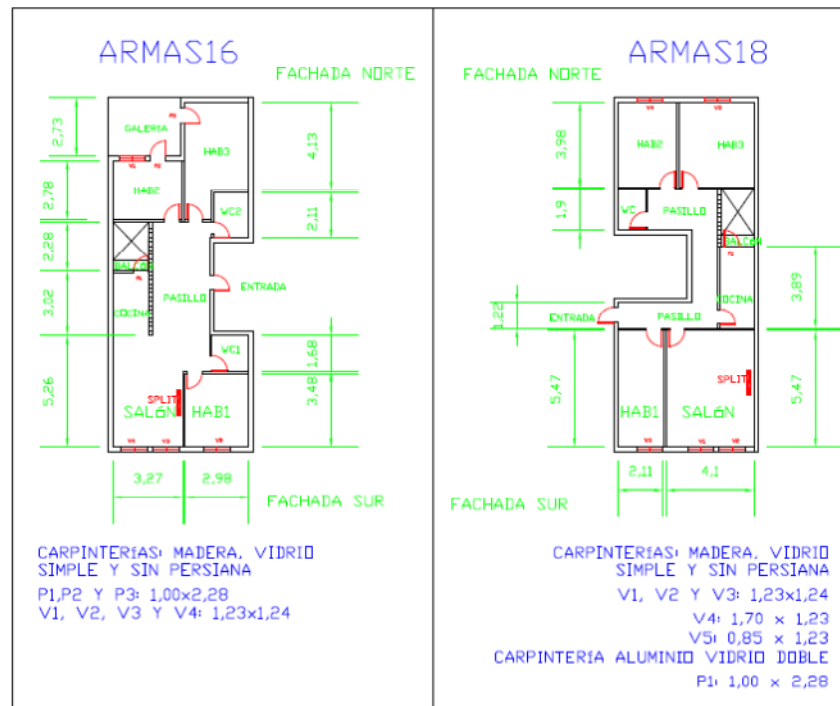
**C15**

Please summarise the expected and achieved results in the action, including some pictures if possible

Cinzia Iacono; 08/01/2018

## EDIFICIO SITO IN SARAGOZZA (SPAGNA)

### Real-scale demonstrator building with portugese tiles in Saragoza (Spain)



Rivestimento di Copertura presente in tegole tipo coppo e sottocoppo con tegole alla romana

Schema degli appartamenti di sottotetto

## Diapositiva 9

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**CI2**

Please summarise the expected and achieved results in the action, including some pictures if possible

Cinzia Iacono; 08/01/2018

# Expected/Achieved Results

**Real-scale demonstrator building with portuguese tiles in Saragoza (Spain)**





## Diapositiva 10

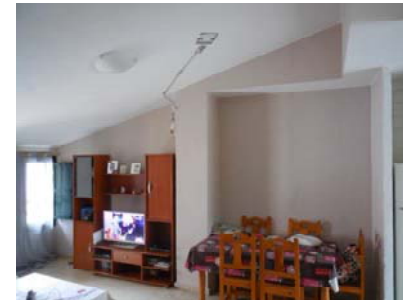
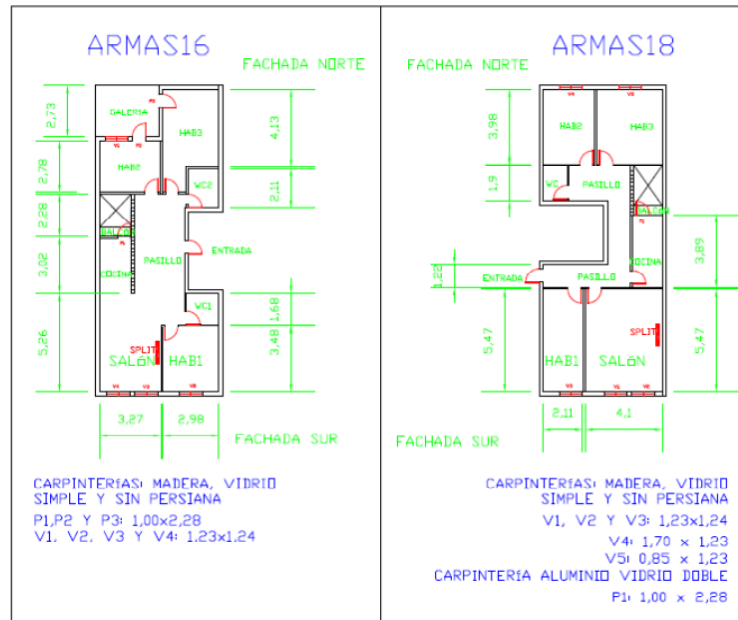
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**CI2**

Please summarise the expected and achieved results in the action, including some pictures if possible

Cinzia Iacono; 08/01/2018

## Real-scale demonstrator building with portugese tiles in Saragoza (Spain)



## Diapositiva 11

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**CI3**

Please summarise the expected and achieved results in the action, including some pictures if possible

Cinzia Iacono; 08/01/2018

## Building Saragozza (Spagna) «tile installation»



Comune di  
Cadelbosco di Sopra (RE)

new Portuguese tile HEROTILE

traditional Portuguese tile





# INQUADRAMENTO Edificio Cadelbosco di Sopra (RE)



## Real-scale demonstrator building with marseillaise tiles in Cadelbosco di Sopra (RE) (Italy)



Regione Emilia Romagna



Provincia di Reggio Emilia



## Diapositiva 13

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**CI2**

Please summarise the expected and achieved results in the action, including some pictures if possible

Cinzia Iacono; 08/01/2018

**Real-scale demonstrator building with marseillaise tiles in Cadelbosco di Sopra (RE) (Italy) the roof dimensions are 13,5 meters x 23,3 meters**





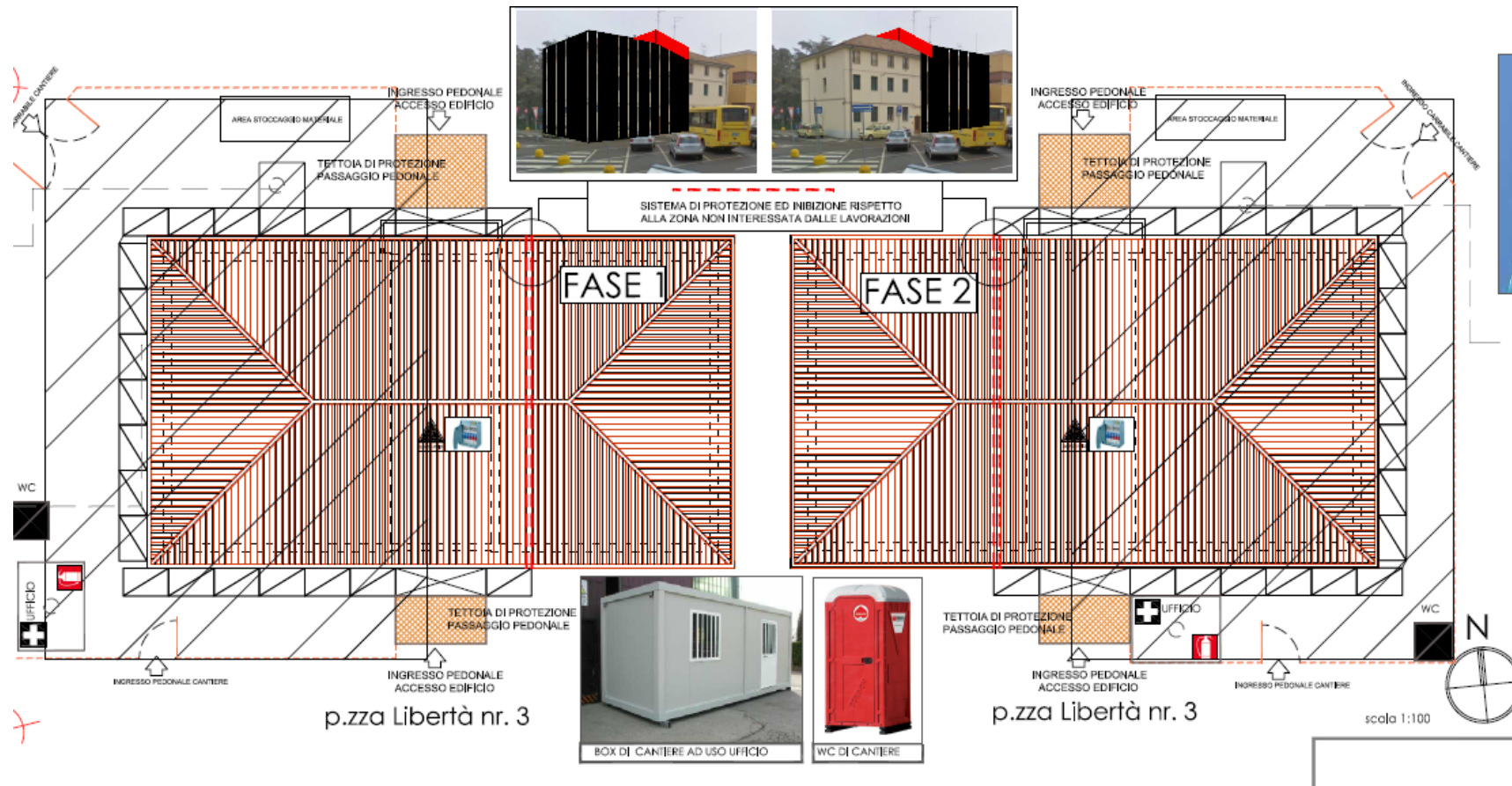
# Building Piazza Libertà, 3 Cadelbosco di Sopra (RE)

-before the works-





# Building Piazza Libertà, 3 Cadelbosco di Sopra (RE) -building site-



Building Piazza Libertà, 3 Cadelbosco di Sopra (RE)  
-building site-  
tiles marsigliesi «herotile»





Building Piazza Libertà, 3 Cadelbosco di Sopra (RE)  
-work progress –  
«wooden substructure tiles»



Building Piazza Libertà, 3 Cadelbosco di Sopra (RE)  
-work progress –  
«tile installation»



Comune di  
Cadelbosco di Sopra (RE)





# Building Piazza Libertà, 3 Cadelbosco di Sopra (RE)

-work progress –  
«tile installation»



Comune di  
Cadelbosco di Sopra (RE)



roof with traditional tile

roof with Herotile tile







Building Piazza Libertà, 3  
Cadelbosco di Sopra (RE)  
«tile installation»



Comune di  
Cadelbosco di Sopra (RE)



# HIGH ENERGY SAVINGS IN BUILDING COOLING BY ROOF TILES SHAPE OPTIMIZATION TOWARD A BETTER ABOVE SHEATHING VENTILATION



## GRAZIE PER L'ATTENZIONE

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Cotto Possagno

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TECNOLOGIE INNOVATIVE

**ANDIL**

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