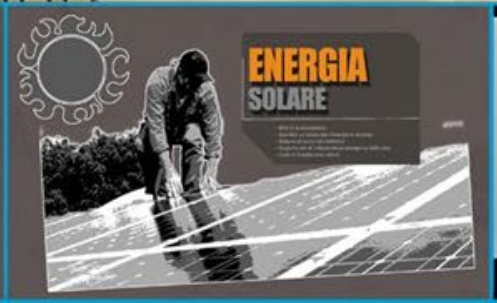
IURC-China Thematic Webinar: Green and Sustainable Buildings 30th June 2021

Sustainable Energy Active Buildings

Ruggero Fondato – Ecomedia



NEEDS

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Università di Roma
Centro di Ricerca
Interdipartimentale Territorio
Edilizia Restauro Ambiente CITERA

NEED FOR ENERGY EFFICIENT → Class A4 COMFORTABLE BUILDINGS for both residential and tertiary use

with
LIMITED COSTS
and SHORT
CONSTRUCTION
TIME

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BENEFITS + ePop

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POSITIVE ENERGY BALANCE → ACTIVE BUILDING
MADE OF ECOLOGICAL MATERIALS → WOOD
WITHOUT CEMENT, MORTAR OR GROUT → FAST

producing LOW ENVIRONMENTAL IMPACT

The integrated building-plant system reverses the trend of energy consumption producing an overall positive energy balance, thus transforming the passive building into an active building

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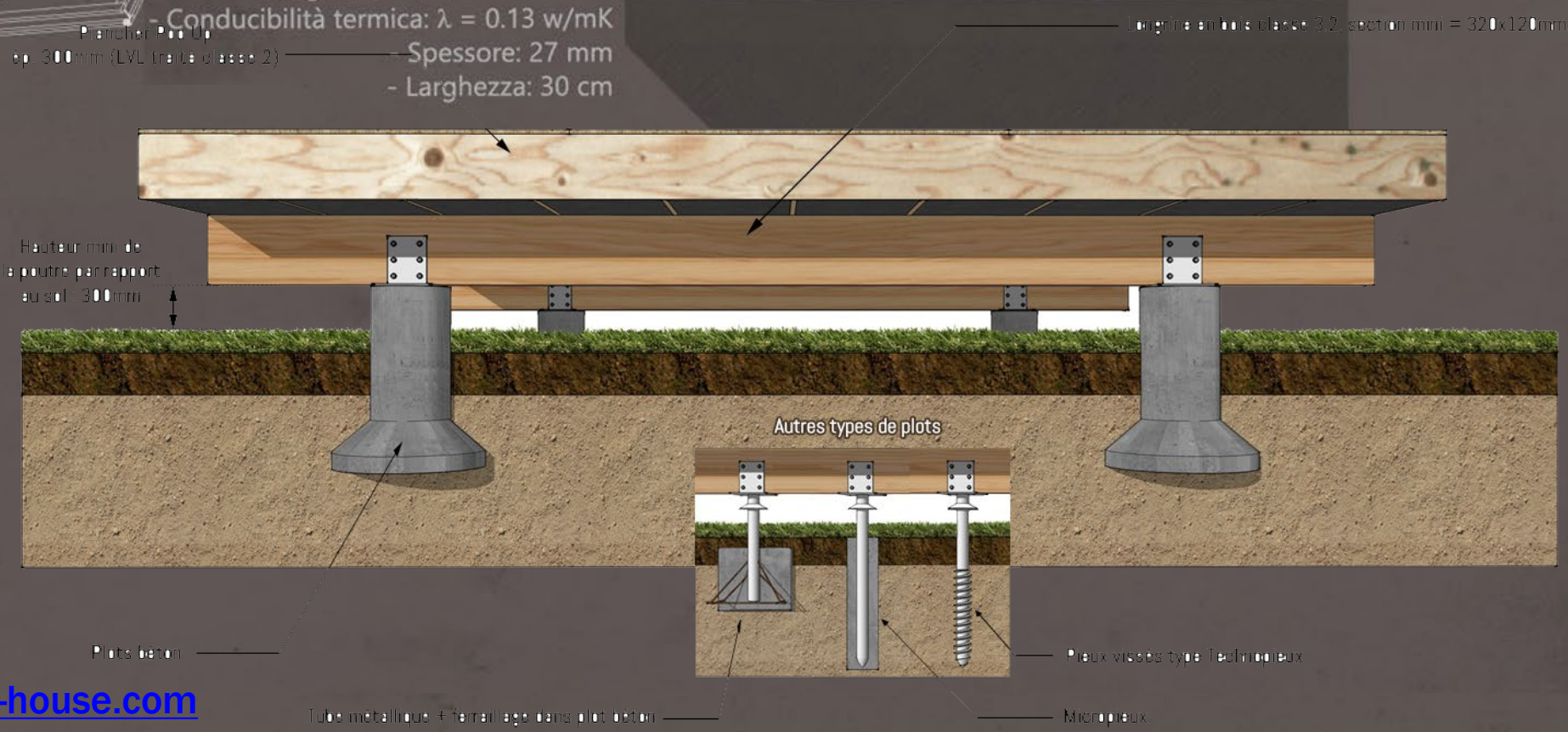
STRENGHT POINTS

INNOVATIVE FONDATIONS ON POLES

- Assi di legno
- Tipo: Laminate Veneer Lumber (LVL)
- Lunghezza massima: 14.00 m
- Conducibilità termica: λ = 0.13 w/mK
- Spessore: 27 mm
- Larghezza: 30 cm



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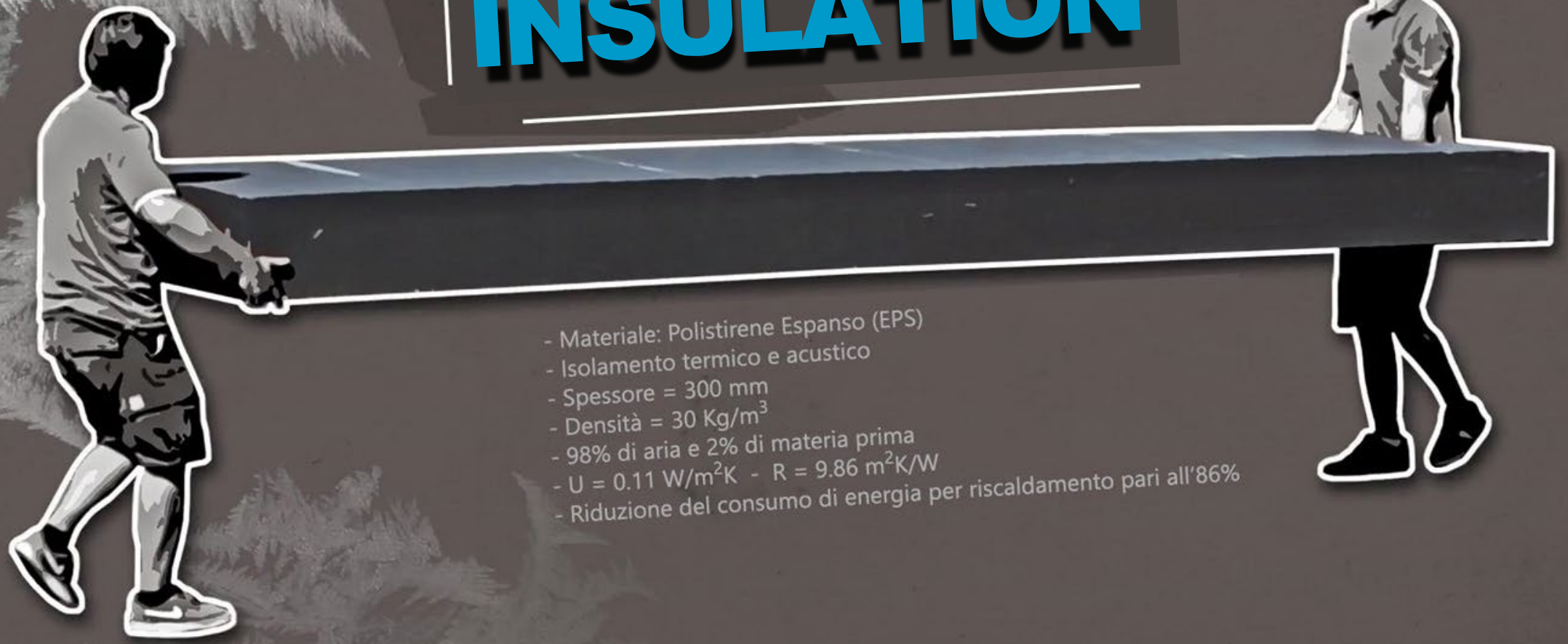
STRENGHT POINTS

INTEGRATED INSULATION



- Materiale: Polistirene Espanso (EPS)
- Isolamento termico e acustico
- Spessore = 300 mm
- Densità = 30 Kg/m^3
- 98% di aria e 2% di materia prima
- U = 0.11 W/m^2K - R = 9.86 m^2K/W
- Riduzione del consumo di energia per riscaldamento pari all'86%

STRENGHT POINTS

STRUCTURAL ECOLOGICAL WOOD

- Assi di legno
- Tipo: Laminate Veneer Lumber (LVL)
- Lunghezza massima: 24.50 m
- Conducibilità termica: λ = 0.13 w/mK
- Spessore: 27 mm
- Larghezza: 30 cm
- Materiale: Abete Rosso
- Modulo elastico = 13800 N/mm^2

STRENGHT POINTS

FAST & EASY TO BUILD

- Materiale leggero: facile gestione
- Montato come Lego
- Nessuna necessità di utensili speciali
- Elevata sicurezza
- Nessun rifiuto prodotto

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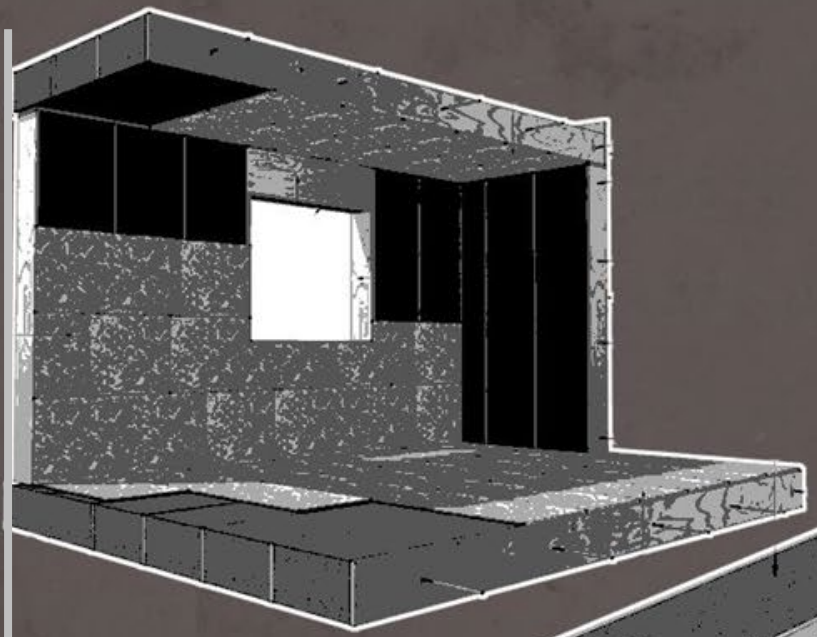
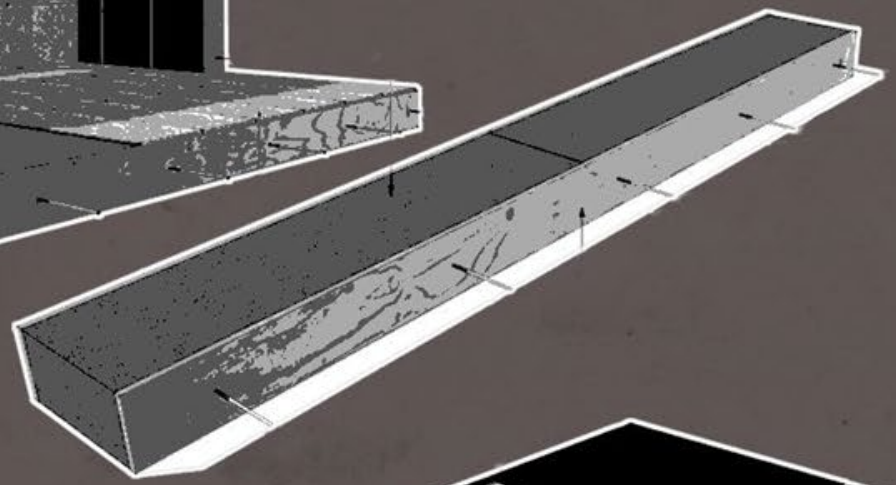
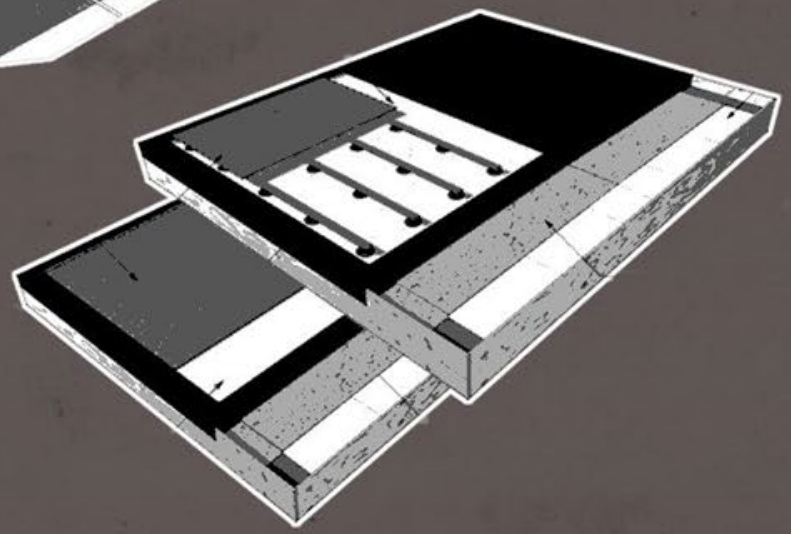
I PUNTI DI FORZA







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MODULARITY

RECYCLABILITY

- manutenzione facile e veloce
- struttura dotata di certificato di smontabilità
- semplicità di separazione dei materiali costituenti in fase di dismissione

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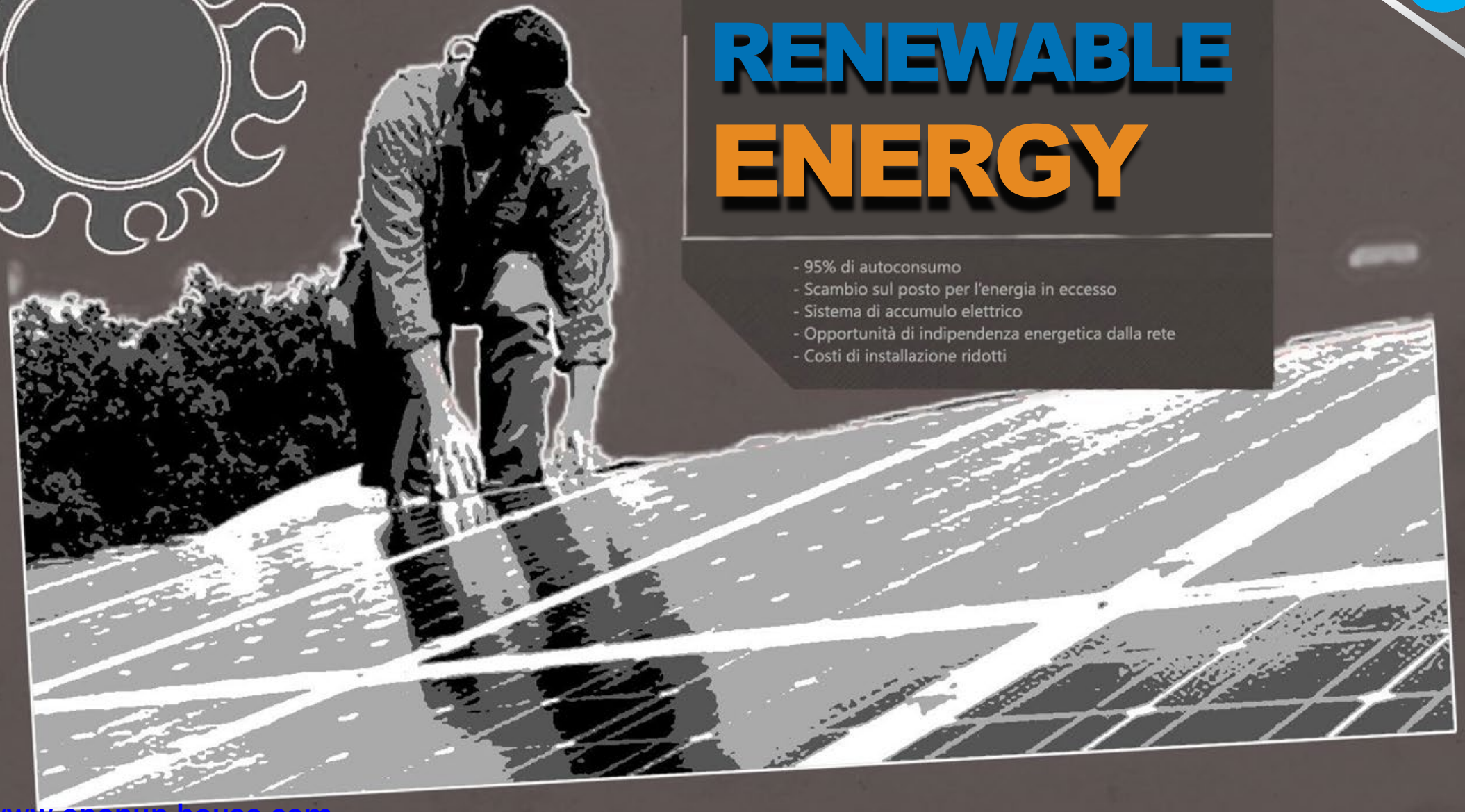
STRENGHT POINTS

RENEWABLE ENERGY

- 95% di autoconsumo
- Scambio sul posto per l'energia in eccesso
- Sistema di accumulo elettrico
- Opportunità di indipendenza energetica dalla rete
- Costi di installazione ridotti



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BUILDING AUTOMATION SMART

- Hardware Open Source in continuo miglioramento consente l' inserimento progressivo e modulare di nuove tecnologie
- Sistemi di domotica efficienti con l'ausilio di sensori negli ambienti domestici e all'esterno
- Monitoraggio continuo della struttura e delle sue prestazioni per consentire la manutenzione programmata
- Monitoraggio di apparecchiature e consumi

STRENGHT POINTS

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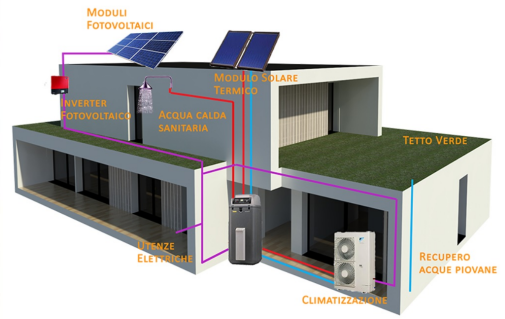
I PUNTI DI FORZA

EXCELLENT INDOOR COMFORT

- Solare termico integrato con Pompa di calore ad elevate prestazioni
- Ventilazione meccanica controllata, integrazione con soluzioni di riscaldamento/raffrescamento attraverso:
  - split;
  - soffitto/pavimento radiante
- Accumulo termico con gestione intelligente



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STRENGHT POINTS

LIFE CYCLE DIGITAL TWIN

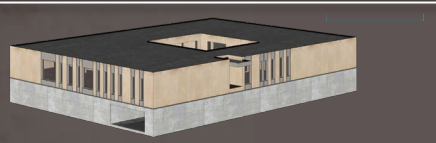
- LIGHTING
- HVAC
- KITCHEN EQUIPMENT
- PUMPS & COMPRESSORS
- CURTAIN WALLING
- FURNITURE
- GLAZING
- STAIRCASES
- ARCHITECTURAL METALWORK

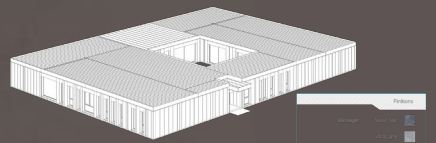
DESIGNED & MANAGED IN BIM

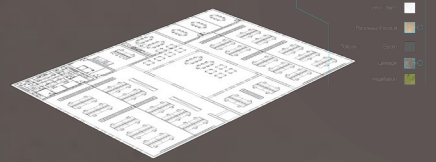
DESIGN

BUILD

OPERATE







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Sustainable Buildings for Smart Living Labs


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Building a Smart Living Lab for Research and Innovation
With the support of Sapienza CITERA, Ecomedia proposes to build NZEB demonstrators in Italy and in China integrating in a innovative way ideas, materials and plants, realizing ENERGY ACTIVE BUILDINGS
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Building a Living Lab for Research and Innovation

Energy Efficient, Sustainable, Fast and Ecological solutions will grant maximum comfort and minimal costs, realizing ENERGY ACTIVE BUILDINGS to use as SMART LIVING LABS where to test innovations.

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ROME Cluster to IHE 2021

Rome Sapienza CITERA
under the patronage of Rome Municipality
participates to the International Horticultural Expo 2021
from april to october 2021 in Yangzhou,
with Hortus Romani Garden and Pavilion designed by

ROME Garden & Pavilion

EXPO 2021 YANGZHOU

HORTUS ROMANI

ROMA

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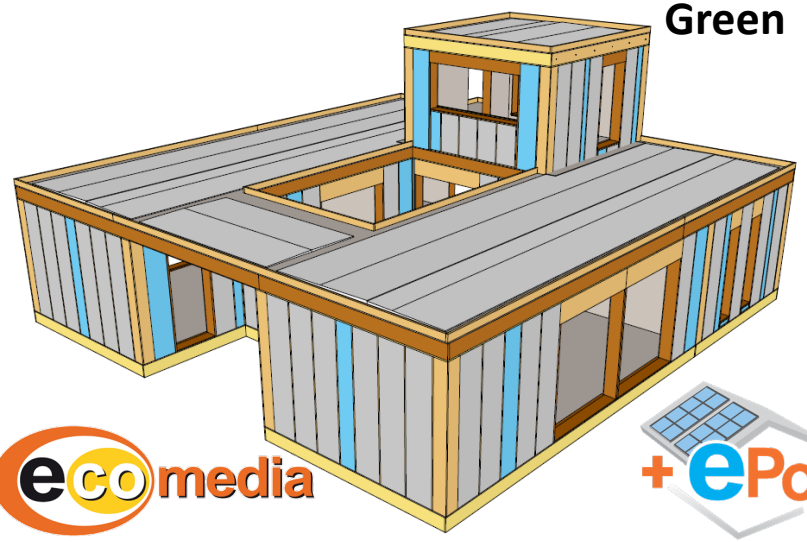
Hortus Romani Key Concepts

1. SMART GREEN BUILDING AND VERTICAL GREEN
2. LANDSCAPE OF VINEYARDS
3. URBAN AGRICULTURE

Roman Styled Garden With Amphitheater & Refreshment areas

Patrick Maurelli
Università Sapienza, Facoltà di Ingegneria, Sede di Latina.

Ecological NZEB pavilion With Vertical Green



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ROME Cluster to IHE 2021

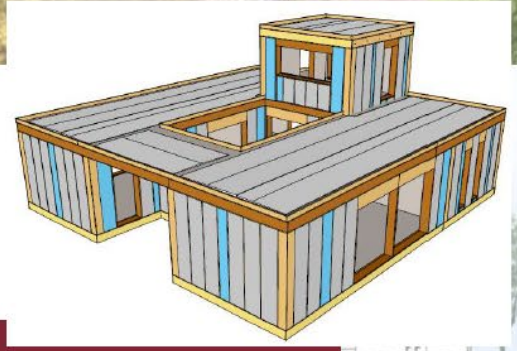
Expo 2021 YANGZHOU

HORTUS ROMANI

Topic 1 - Smart Near-Zero Energy Buildings (NZEB) 主题一：智慧近零能耗建筑

HORTUS ROMANI

ROMA



Yangzhou 2021 International Horticultural Expo:

2021年扬州世园会

Rome Garden & Pavilion

罗马花园及展厅

R&D: 研究与发展:

Vertical Green integration & Positive Energy Buildings

垂直绿化整合及正能源建筑

→ 100% recyclable

→ 100%可回收

→ Circular (Economy) Building 循环(经济)建筑

Pavilion designed by

ecomedia

Garden designed by

ambientStudio

design - planning - creativity

solutions for natural and urban **landscapes**

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ROME Garden & Pavilion

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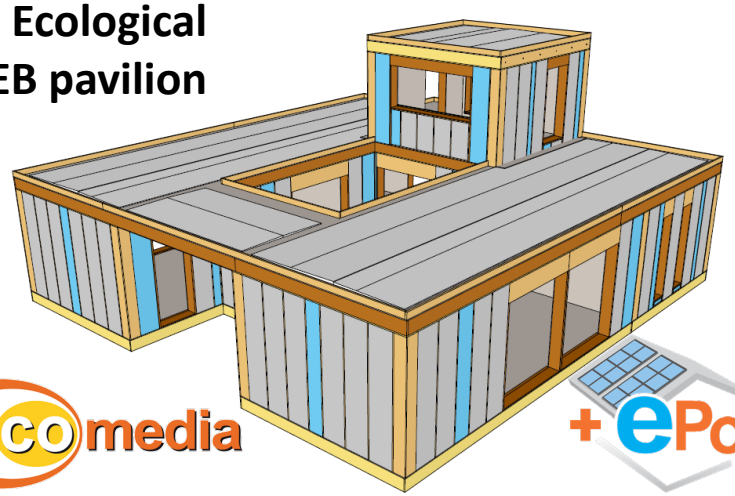
Ecological
NZEB pavilion



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ROME Garden & Pavilion

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Ecological
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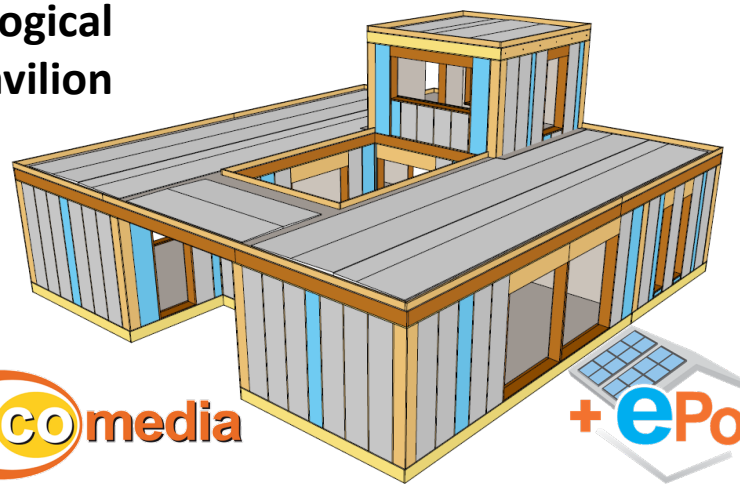

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