

Low Energy Consumption Building - Rome, Italy	
<b>Keywords</b>	<b>Energy Efficiency, Thermal Insulation, Solar Energy Use, Exhibition</b>
<b>Pictures</b>	
<b>Objectives</b>	<p>Construction of a semi-detached demonstration building with very low energy consumption (three litres of fuel per year and m<sup>2</sup>) in order to:</p> <ul style="list-style-type: none"> <li>- Promote the use of high level of energy efficiency systems by builders and designers.</li> <li>- Test the Urban Policy Actions in the Sustainable Energy field implemented by the Municipality of Rome.</li> <li>- Raise awareness among citizens in undertaking energy saving actions and the use of renewable energy sources in residential buildings by the organisation of Solar Houses Exhibition (Project: ESBE – ALTENER 2002 Programme)</li> </ul>
<b>Description</b>	<p>Technical parameters:</p> <ul style="list-style-type: none"> <li>- High level of energy efficiency of the building shell.</li> <li>- Space heating system with radiant floor and condensation boiler.</li> <li>- Controlled ventilation system based on hydro-adjustment for each residential unit.</li> <li>- Thermal solar system for the supply of sanitary hot water.</li> <li>- Photovoltaic system for the production of electric energy of 3 kWp power.</li> </ul> <p>Economic benefits:</p> <ul style="list-style-type: none"> <li>- National feed-in tariff scheme remunerating power produced by photovoltaic systems (tariff paid is about three times the electricity market price)</li> <li>- About 50% of electricity and about 50% of hot water consumption is satisfied by renewable energy sources which reduce overall fuel/electricity bills, respectively.</li> </ul> <p>Awareness raising events on energy saving measures:</p> <ul style="list-style-type: none"> <li>- Outdoor exhibitions called “Ecological Sundays”, workshops, press conferences, conventions, permanent exhibitions in spaces owned by the Municipality of Rome, book-exhibition editing, Solar Houses opened to the public.</li> </ul> <p>Methodology</p> <ul style="list-style-type: none"> <li>- Energy performance of buildings is evaluated using Recal 10 (ENEA) software, based on Law 10/91 (Italian Law on energy obligation in heating system); FATE programme (realised by RomaEnergia), based on norm EN 832, and energy balance studies issued by the University of Pisa, Energy Department.</li> <li>- Monitoring of energy consumption and energy losses inside the flats is currently in process, developed by “Sestaenergia”.</li> <li>- Partnership/Sponsorship with companies producing building materials and installations used: e.g. BASF Italia, ALDES Italia, BPB Italia, EMISSIONE ZERO, etc.</li> </ul>
<b>Results / Achievements</b>	<p>The “Three litre house” consumes a total of 32kWh per m<sup>2</sup> and year (low-energy standard). The solar thermal system for hot water integrated into the overall heating system achieves an annual integration factor of 39%. The photovoltaic system of 3kWp contributes to 60% to overall electricity requirements. Citizens, architects and project designers showed a great interest in the initiative.</p>
<b>Friendly advice for replication</b>	<p>Sponsoring on part of building companies and producers of building materials is of advantages (awareness raising, and creating interest for the programme on part of respective companies).</p>
<b>Online information</b>	<p><a href="http://www.casa3litriroma.it">www.casa3litriroma.it</a>, <a href="http://www.urbanistica.comune.roma.it/urbaroma/resources/cms/documents/136703delucatreilitri.pdf">http://www.urbanistica.comune.roma.it/urbaroma/resources/cms/documents/136703delucatreilitri.pdf</a>, <a href="http://www.romaeconomia.it/attachment/296404CasaTreLitriRoma.pdf">http://www.romaeconomia.it/attachment/296404CasaTreLitriRoma.pdf</a>; <a href="http://www.infobuild.it/mecgi/drv?tlHome&amp;mod=modInnovazioneSheet&amp;IDMENU=28&amp;MENU_INDEX=6&amp;UID=34658">http://www.infobuild.it/mecgi/drv?tlHome&amp;mod=modInnovazioneSheet&amp;IDMENU=28&amp;MENU_INDEX=6&amp;UID=34658</a></p>
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