

Building Code of Carugate (Milano)

Summary

In 2003, the small (less than 15,000 inhabitants) Municipality of Carugate adopted a new building regulation which promotes energy efficiency in general. In particular, following the model of Barcelona “Solar Ordinance”, the use of solar thermal systems to produce at least 50% of the domestic hot water demand was introduced as a mandatory measure for new buildings.



Ordinance Facts

Ordinance title	City Building Code of Carugate
Type of ordinance	Solar thermal ordinance
Starting date	Nov. - Dec. 2003
Duration	Still in operation - No closing foreseen
Geographical area	Municipality of Carugate
No. of inhabitants	About 14,000; 5 km ²
Scope	Municipality level; only new buildings; exemptions: historical areas
Technology priorities	Facultative and mandatory measures are foreseen; solar thermal is mandatory
Size of the solar heating system required	Facultative and mandatory measures are foreseen; solar thermal is mandatory
Alternative measures	None
Executing authority	Municipality of Carugate
Execution mechanism	The new measures were embedded in the local general Building Code

Development and Implementation

Background	<p>This regulation was promoted also thanks to the following background elements:</p> <ul style="list-style-type: none"> - EU Directive on Energy Efficiency in Buildings; - Barcelona “Solar Ordinance”; - raising interest on the side of the Regions (and, more in general, of the Local Bodies) for the promotion of sustainable buildings.
Objectives	<ul style="list-style-type: none"> - to Introduce energy efficiency measures and renewable energy technologies as standard and mandatory solutions for new buildings. - to act as a good practice, stimulating the replicaton in other Municipalities
Process	<ul style="list-style-type: none"> - the Carugate Municipality promoted this ordinance; - “Rete Punti Energia” (association of energy agencies of Region Lombardia) gave the Municipality the necessary technical support; - the building sector (designers, builders, etc.) was involved from the beginning; - the Province of Milano, which is trying to extend this kind of building regulation to other Municipalities.

Timing	The new building regulation was approved on 24/11/2003 (valid from 24/12/2003). No closing is foreseen, unless it will be modified by an updated version of the local building regulation.
Quality schemes product	no
Quality schemes installation	no
Quality schemes other	no
Flanking measures	<ul style="list-style-type: none"> - promotion in local fairs and schools - pilot plant in the Municipality buildings - low interest loan from a local bank - trainings for designers and building companies
Supervision	<ul style="list-style-type: none"> - first check (project phase): the designer fill in a check list with the parameters of the solar thermal plant - second check (building phase): when solar panels are installed
Sanctioning fees	Not foreseen
Costs for implementing	Improved skills needed by the technical personnel to evaluate building projects.

Monitoring and Results

Monitoring	The Municipality of Carugate, together with "Rete Punti Energia", is monitoring the outcome of the regulation.
Quantitative results	The regulation brought to a total (installed or approved) of about 485 m ² by 2006. The average per capita is 1 m ² per 28 inhabitants, while the Italian average is 1 m ² per about 1,400 inhabitants.
Costs borne by the enduser	For solar thermal, the extra-cost per m ² of building is 0.5%, with a payback time of 6 years.
Effects on other sectors	No information available.
Communication	<ul style="list-style-type: none"> - good and wide communication actions, including final users and schools - communication of the figures on building extra-costs and rate of return of the investment
Future outlook	No information available.

Lessons Learned

Barriers faced and overcome	The involvement of the main actors from the earliest stage of the process allowed to overcome external resistances to the ordinance development.
Success factors	<ul style="list-style-type: none"> - Wide communication actions (final users and schools); communication on building extra-costs figures - The involvement of a local bank to provide a low interest loan - The bottom-up approach
Potential for improvement	<ul style="list-style-type: none"> - Include renovations in the scope of the law - Include quality requirements for the solar thermal plants - Promote more strongly the availability of a low interest loan
Recommendations	Such a regulation should have a comprehensive approach, taking into account most of the possible measures to increase the energy efficiency of the buildings.

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