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## Mansard Roof, Attics and Garrets and the Convenience of Investment in order to Contain Land Consumption

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### Abstract

The research, carried out by Politecnico di Milano, analyses innovative architectural solutions in the enhancement of mansard roof and the convenience of investment in this field compared to other real estate asset classes in order to contain land consumption [1, 7, 10]. The aim is to identify the best practices (both new construction and refurbishment of attics), the intervention costs and the market value of the recovered space (loft or attic) in relation to other units of the building.

The research is divided into the following phases:

1. Overview of the Italian attics market. This part presents the state of art of the Italian housing market in relation with the opportunity and convenience of the attics refurbishment. In particular, the market analysis (size, cost, time of sale, etc.) shows the comparison among different geographical areas (regions, provinces, city centres, etc.);
2. Search for innovative design solutions and analysis of best practices;
3. Investment convenience in lofts and attics refurbishment compared to other types of investment in urban regeneration projects. For this purpose, about 200 designers working on the entire national territory and some major players in the Italian Real Estate market were interviewed.

The research tries to raise operator's awareness in order to limit the land consumption, to improve existing buildings, to revitalize cities and the historical centres.

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## 1. Introduction

The enhancement of mansard roof, attics and garrets is a prominent element in the real estate market and it is going to become increasingly important [2].

The problem of land consumption leads to make use of building spaces that are already available such as attics and lofts [3]; furthermore, in the main Italian cities new planning regulations offer the possibility to increase the building volume in case of energy refurbishment [8, 9].

## 2. Primary Headings

The regulations that control the housing rehabilitation of the mansard roofs vary from one region to another. The regional laws foresee that for the realization of a mansard roof must have respected a series of requisite [4].

Table 1. Regional law for the recovery of mansard roof [6].

Region	Regional law	Average height	Minimum height
<b>Abruzzo</b>	26/04/2004 nr. 15 art. 85	2.40 m *	1.40 m
<b>Basilicata</b>	4/01/2002 nr. 8	2.40 m	1.40 m
<b>Calabria</b>	16/04/2002 nr. 19, art. 49	2.20 m	1.50 m
<b>Campania</b>	28/11/2000 nr. 15	2.40 m *	1.40 m
<b>Emilia Romagna</b>	6/04/1998 nr. 11	2.40 m	
<b>Liguria</b>	6/08/2001 nr. 24	2.30 m *	1.50 m
<b>Lombardia</b>	11/03/2005 nr. 12	2.40 m	
<b>Piemonte</b>	6/08/1998 nr. 21	2.40 m *	1.60 m
<b>Sicilia</b>	16/04/2003 nr. 4 art. 18	2.00 m	
<b>Veneto</b>	6/04/1999 nr. 12	2.40 m	

\* The lower height spaces must be closed with masonry or fixed furniture works

## 3. The analysed sample

The analysed sample has included all regional capitals and the cities with a populations greater than 150.000 people. For these cities (Genoa, Milan, Naples, Palermo, Rome, Turin), an analysis of the whole province has been done, as well.

## 4. The tender of mansards in the cities

The total number of mansard roof offered for sale in the analysed cities is 1.625, compared to a total number of units of another kind equal to 163.419. The research demonstrates that the average selling price per square meter of a mansard roof (€ 3.463/sqm) is significantly higher (+703 €/sqm), compared to a real estate unit of another type (apartments, penthouses, villas, farmhouses, etc.) with € 2.759/sqm.

The analysis also showed that most of the mansard roof on the market (95%) is in a good state of repair and does not require interventions of restructuring. The difference in price per square meter between the supply of the refurbished mansard roof and the non-refurbished one is 571 €/sqm.

The cost of a mansard roof to redevelop (2.920 €/sqm) is higher (about 160 €/sqm), compared to a different type of housing unit (2.759 €/sqm). As regards the surface, the greatest number of mansard roof for sale varies from 70 to 150 square meters. Both refurbished and not refurbished mansard roofs have average time for selling the property of less than a year.

## 5. The tender of mansards in the provinces

In the analysed provinces the number of mansard roof is 1.322, compared to a total number of units of another kind equal to 184.107.

The analysis showed that the data obtained from the study of the provinces are aligned with those of the cities. It can be noted that the average selling price per square meter of a mansard (3.545 €/m<sup>2</sup>) is much higher (+939 €/sqm)

than the average selling price per square meter of a real estate unit of another type (2605 €/sqm). Both the site mansard in the city (94%) and in the province (98%) are in a good state of repair and not requiring renovations.

The price difference between the supply of the refurbished mansard and the non-restructured one is 643 €/sqm for the capital city and 681 €/sqm for common hinterland.

The price per square meter for a mansard placed in the city, both for renovation and in a good state, is higher than for another building unit type.

Equally, an attic located in the hinterland (both to be restored and in good condition) has a price lower than a real estate unit of another type. For the average area, the largest number of refurbished mansards both in town and in the province, is concentrated between 70 and 150 square meters. Instead, the mansards not refurbished have a size of less than 70 square meters.

## 6. The tender of mansard roofs in the cities

The number of building units having a garret in the analysed cities is 2.303, compared to a total number of housing units (163.419).

Therefore, housing units with garret in the entire market is 1,42%. Analysis has revealed that most of the garrets have average size of less than 50 square meters.

The average selling price per square meter of a garret (2.095 €/m<sup>2</sup>) is lower (-674 €/sqm) on the average selling price per square meter of a real estate unit of another type (2.768 €/sqm).

Regarding the functional distribution, most of the building units with garret are made on a single plane (62%).

Most of the building units with garret (40%) recorded average time for selling the property of less than 3 months, 14% from 6 to 9 months and 10% from 9 to 12 months. The remaining (20%) reported average time for selling the property more than one year.

## 7. The tender of mansard roofs in the provinces

In the analysed provinces, the number of property units with garret is 2,442, compared to a total of 184,107 housing units.

The impact of the number of garrets with respect to the totality of the market is 1,33%. Conducted analysis showed that the data obtained from the study of the provinces are aligned with those of the cities. It can be noted how most of the garrets have an average surface area less than 60 square meters.

The average selling price per square meter of a building unit with the garret (2.278 €/sqm) is lower (-327 €/sqm) than the price of a housing unit of another type (2.605 €/sqm).

This figure is higher than the average of the city, where the difference is -674 €/sqm. Regarding the functional distribution, while in the hinterland municipalities the number of property units with garrets developing on one level, is equivalent to those developing on several floors, in the capital city the number of residential units on a single floor is predominant.

In the analysed provinces also the real estate units with garrets located in the hinterland (1,550) are numerically higher than those in the city (892).

Most of the building units with garrets (41%) have an average for selling the property less than 3 months, 14% from 3 to 6 months, 14% from 6 to 9 months and 10% from 9 to 12 months. The remaining 21% reported average time for selling the property more than one year.

## 8. The individualization of the intervention's costs for the recovery of the mansard roofs

The research is continued by sending a questionnaire to 195 designers and some of the major real estate markets. The questions are about redevelopment of the garret. Data show that the redevelopment of a garret, a mansard roof or the last floor of a building constitutes a significant activity. In fact, in the past two years, 18% of the projects have been related to this activity.

The survey showed that the average restructuring costs amounted to 1.068 €/sqm, even though for most of the designers (68%) the cost is equal to 820 €/sqm.

The refurbished building unit, however, acquires a market value that fluctuates between 50% and 75% more than its initial value.

## 9. The demand for mansards in the cities and in the provinces

The analysis of lofts demand showed that on average there are 16 mansards in every city and 77 in the provinces. The average proposed price amounted to 5.250 €/sqm in the cities and to 3.595 €/sqm in the provinces. The demand focuses specifically (58%) on lofts with an average area ranging from 70 to 150 square meters. In addition, 60% of people looking for a purchase of a mansard are inclined to spend more than 300.000 €. The 62% of all mansards must have a balcony.

A recent analysis, conducted by I-Com (Istituto per la Competitività) and Assoimmobiliare and reported in the second Energy Efficiency Report realized by Enea in 2013, shows how the view and brightness are two of the factors with greatest influence on the market value of a real estate unit (Enea, 2012). The research shows that the terrace is an added value that increases the propensity to spend for those interested in buying a mansard. In particular, the difference in average price between the demand of a mansard with terrace and without is 1.182 €/sqm.

## 10. Results and Discussions

The analysis data shows that in the most important Italian cities there are about 2.000 offers of mansards and 3.800 offers of the residential units with garrets, compared to the total market of about 250.000. The processed data for mansard tender shows that the average price per square meter of a mansard, both in town and in the province, is more than 800 €/sqm compared to a real estate unit of another type. In fact, for a real estate unit of another type the price is about 2.600 €/sqm, for mansard is around 3.400 €/sqm.

The differential cost per square meter between a refurbished mansard and not refurbished mansard is about 600 €/sqm. The percentage of tender lofts is 0,82% compared to the total number of the real estate units (247.994).

The table below regarding the city of Milan shows the price difference per square meter between a mansard and another building placed in the centre and in the suburbs.

In particular, the differential cost per square meter in the historical centre is much higher (1.892 €/sqm) than the one located in the suburbs (641 €/sqm).

Table 2. The average selling price of a mansard and the units of another kind in Milan (old town, hinterland and suburb).

MILAN	Average selling price		The average selling price between the mansard and the units of another kind
	Units of another kind	Mansard	
<b>Old town</b>	6.719 [€/sqm]	8.611[€/sqm]	1.892[€/sqm]
<b>Hinterland and suburb</b>	3.624 [€/sqm]	4.265[€/sqm]	641[€/sqm]
<b>Difference of price</b>	3.095[€/sqm]	4.346[€/sqm]	1.251[€/sqm]

The analysis of the mansards demand, however, allowed to understand that there is a strong willingness to pay more than the average market price in order to become an owner of a building unit of this type (5.250 €/sqm).

This amount decreases significantly (3.595 (€/sqm) if are taken into account the municipalities that are part of the hinterland of the cities with a population higher than 500.000 of inhabitants.

The number of demand for mansards (494) form about 24% of those for sale (2.033).

Table 3. Summary table of the tender and the demand for mansards.

<b>TENDER</b>		
	<b>Average selling price</b>	<b>Number of housing unit for sale</b>
<b>Units of another kind</b>	2.600 [€/sqm]	247.994
<b>Mansard</b>	3.400 [€/sqm]	2.033
<i>Difference of price</i>	- 800 [€/sqm]	
<b>DEMAND</b>		
	<b>Average selling price proposed by demand</b>	<b>Number of applications for purchase</b>
<b>Mansard in the cities</b>	5.250 [€/sqm]	494
<b>Mansard in the provinces</b>	3.595 [€/sqm]	

The garrets tender shows that the average price of a housing unit with a garret in a city and in a province is less than 460 €/sqm, compared to a real estate unit of another type. In fact, if the price of a real estate unit of another type is 2.460 €/sqm, the price of a building unit with the garret is 2.000 €/sqm.

Table 4. Summary table of the tender of mansard roof.

<b>TENDER</b>		
	<b>Average selling price</b>	<b>Number of housing unit for sale</b>
<b>Units of another kind</b>	2.460 [€/sqm]	247.029
<b>Mansard roof</b>	2.000 [€/sqm]	3.853
<i>Difference of price</i>	+ 460 [€/sqm]	

The research demonstrates that mansards and apartments with garrets are characterized, in the analysed provinces and cities, from an average time for selling the property lower than one year. In particular, most of the mansards and garrets (around 40%) have recorded average time for selling the property less than 3 months.

## 11. Conclusions

The data demonstrate that the attics express the highest values per square meter in the Italian residential market. Furthermore, the research shows that a family that wants to invest in an attic may realize a significant gain if they decide to refurbish and sell the property in a short time.

The research shows that a family that wants to invest in a mansard may realize a significant equity increase if it decided to renovate the property unit and then sell it in a short time.

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