

# TOP QUALITY

EVERSUMMER





**PURINA**  
FOOD COATINGS

# TOP QUALITY

EVERSUMMER

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# Top Quality lasts more than 10 years!

## Long live wood!

How to double the life of outdoor wooden joinery improving their appearance and with little environmental impact.

That was the subject of a project to which the Research and Development laboratories of Renner Italia have dedicated years of study.

The result is the **Aquaris line of Top Quality water-based coatings**, a development bound to revolutionize the traditional concept of coatings for outdoor wooden joinery. Top Quality water-based coatings are the ultimate solution for industries and craftsmen alike.

**While traditional coatings can last six years at best, the new products developed by Renner preserve their quality and stand unchanged for more than ten years, providing the highest level of protection for doors, windows and shutters.**

## Tested in extreme conditions

Tests were carried out in two faraway parts of the world on angle sections of the five main wood species used for joinery and treated with the new Top Quality coatings.

**The EverSummer programme**, consisted in exposing the test samples to extreme weathering conditions, including levels of UV radiation and relative humidity much greater than those normally recorded in Italy.

The results were extraordinary. The Top Quality range of products, which had already been assigned the Quality Award for resistance to natural ageing by the Catas Research Centre of San Giovanni al Natisone (Udine, Italy), passed the test programme set up by **Atlas material testing technology LLC at Miami (Usa) and Townsville (Australia)**.



### **The philosophy of selection**

The Top Quality project is the latest and best-developed stage of a company philosophy that in only five years' time has projected **Renner Italia to the top levels of its market sector**. A strict selection and control programme on incoming new materials and outgoing products is at the basis of the company's policy.

Only the finest of raw materials are allowed to enter the production plant, and the final testing authorizes the shipment only of products meeting the highest quality standards. That counts as a double warranty for customers who rightly aspire to Top Quality.

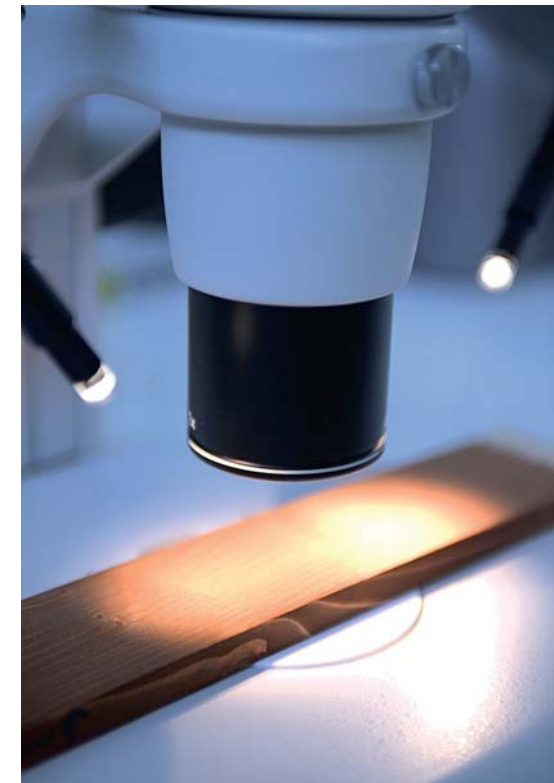


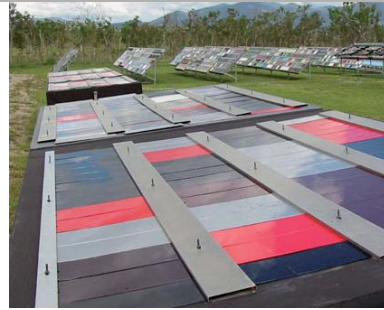
# Renner quality certified **by Atlas**



Operating a worldwide network of test sites, **Atlas Material Testing Solutions is the strictest of judges** in measuring the deterioration caused on materials by sunlight, humidity, wind and rain. Established in 1915, Atlas based its headquarters in Chicago, USA, but market demands convinced the company that its presence was necessary also in the Old Continent. The company's European headquarters are at Linsengericht, Germany. Atlas began its activities almost one hundred years ago, with a laboratory instrument designed to simulate the fading effects of the sun on fabric. Atlas was the first company in its field to use sophisticated equipment such as the Xenotest and

QUV to carry out artificial accelerated ageing tests. Atlas has set up a worldwide network of exposure sites to test the effects of natural weathering on materials. Some of these sites are located in places where the weather conditions can be extreme. Among them, if we consider UV radiation and rainfall, are Townsville (Australia) and Miami (Florida, USA). These are the locations where wooden items treated with Top Quality coatings were exposed to severe weather under the EverSummer programme and successfully passed twelve months of gruelling tests. Renner, **is the only Italian company to achieve these results.**





Exposure sites operated by Atlas Material Testing Solutions



# EverSummer

## Summer without end

### About EverSummer

Renner Italia developed the EverSummer programme together with Atlas Material Testing Technology. The programme consisted in installing wooden windows treated with Top Quality coatings in constant summer conditions. **Temperatures, humidity, rainfall and sunlight** were typical of locations close to the equator, and much more **drastic than the conditions found in Italy**. Under the EverSummer programme, the Top Quality coatings developed by Renner Italia were subjected to severe weathering.

The test samples remained exposed to weathering agents for twelve months.

The first six months were spent in a tropical environment, in Australia; during the next six months the samples were exposed to the subtropical climate of Florida.

The performance of the Top Quality coatings was superlative. Atlas duly certified the superior resistance of wooden windows treated with Top Quality products.

### The three stages of the EverSummer programme

The EverSummer programme was divided into three stages. For the first six months the samples were installed in the Townsville site, exposed to the full austral summer season from 21 September to 21 March. The second stage consisted in shipping the samples across the Pacific Ocean. For the final stage of the programme the samples were installed at the Atlas site in Miami, where they remained from 21 March to 21 September, during the summer of the northern hemisphere.

### Climate data comparison

After the successful conclusion of the test, the climatic conditions of Townsville and Miami were compared to those of three Italian cities, and the results underscore the importance of the results obtained by the EverSummer programme.





# Climate data comparison

	UDINE (Italy)	BOLOGNA (Italy)	CATANIA (Italy)	MIAMI (Florida-USA)	TOWNSVILLE (Australia)	EVERSUMMER Programme
<b>Hemisphere</b>	Northern	Northern	Northern	Northern	Southern	
<b>Climate</b>	Temperate Subcontinental	Temperate Continental	Warm temperate Subtropical	Subtropical	Tropical	
<b>Elevation</b>	50 m	40 m	20 m	3 m	15 m	
<b>Temperature</b> Annual average	12,9°C <sup>(2a)</sup>	13,3°C <sup>(2a)</sup>	17,3°C <sup>(2a)</sup>	24,5°C <sup>(1b)</sup>	25,3°C <sup>(5)</sup>	27,1°C <sup>(6)</sup>
<b>Rainfall</b> Annual average	1248 mm <sup>(2)</sup>	709 mm <sup>(2)</sup>	547 mm <sup>(2)</sup>	1629 mm <sup>(1a)</sup>	1109 mm <sup>(4)</sup>	2091 mm <sup>(6)</sup>
<b>Relative humidity of air</b> Annual average	72% <sup>(2)</sup>	74% <sup>(2)</sup>	70% <sup>(2)</sup>	77% <sup>(1b)</sup>	70% <sup>(5)</sup>	74% <sup>(6)</sup>
<b>Total solar radiation (MJ/m2)</b>	4725 <sup>(3)</sup>	5110 <sup>(3)</sup>	5855 <sup>(3)</sup>	6301 <sup>(1a)</sup>	7994 <sup>(5)</sup>	8162 <sup>(6)</sup>

## Sources of climate data

- 1) ATLAS Material Testing Solutions () - (a) average 2000-2007 - (b) year 2007
- 2) Site: monthly averages of last 30 years; (a) calculated
- 3) Site: average of entire period 1994-1999
- 4) Site: long-term averages
- 5) Site: year 2003
- 6) Values calculated for the following periods: from 21/9 to 21/3 for Townsville and from 21/3 to 21/9 for Miami

 Lowest value  
 Highest value

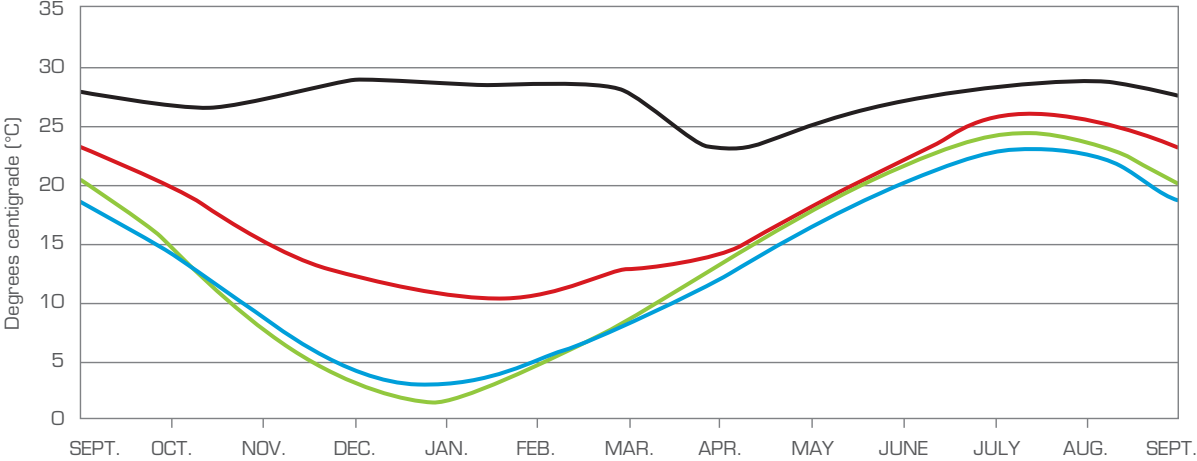
As shown by the table above, the elevation above sea-level is roughly the same for all the locations examined. The three Italian cities (Udine, Bologna and Catania) were chosen to represent the country's three macro-regions (northern, central and southern, respectively). None of the cities is more than 50 metres above sea-level. The difference between the annual average temperatures varies from 12,9° C in Udine to 17,3° C in the milder Catania, much lower than Miami (24,5° C) and Townsville (25,3°C), and practically insignificant compared to the average temperatures registered during the EverSummer programme which took place during the summer months of the overseas testing sites. **The average of 27,1° C recorded during the EverSummer programme was more than twice the average for Udine and Bologna.**

**The annual averages of rainfall** in the EverSummer locations, **were three or four times the corresponding values for Bologna and Catania.** Conversely, the relative humidity in the air was comparable to the values normally measured in Italy.

The total solar radiation also showed a large difference, with Udine receiving about half the amount of ultraviolet radiation measured in the EverSummer exposure sites.

# Climate charts

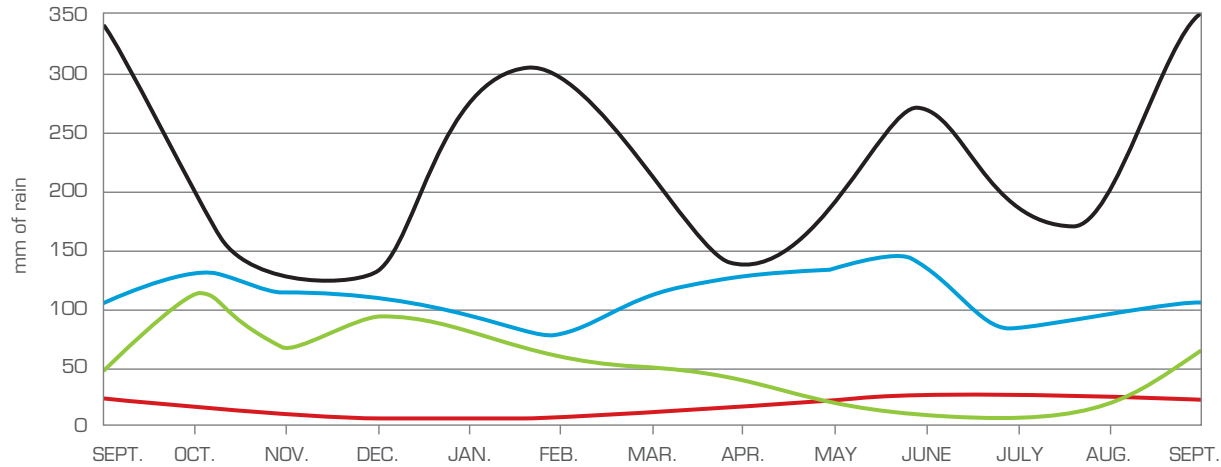
AVERAGE MONTHLY TEMPERATURES (°C)



EverSummer Programme  
Catania  
Bologna  
Udine



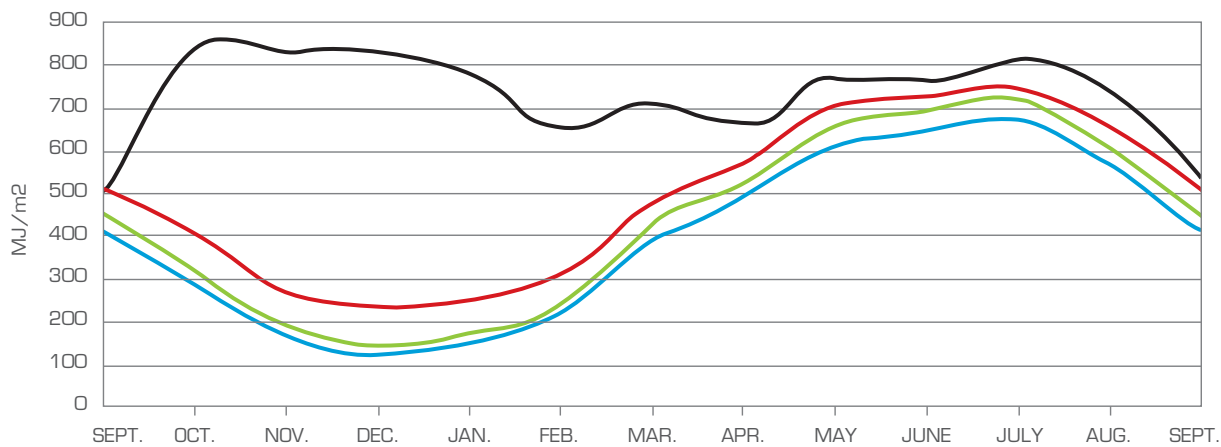
**AVERAGE MONTHLY RAINFALL (mm)**



- Eversummer Programme
- Catania
- Bologna
- Udine

The charts showing the average monthly temperature, rainfall and total solar radiation highlight the enormous difference between the strength of the weathering agents in the EverSummer sites and those of the locations representing the climate in Italy.

**AVERAGE MONTHLY TOTAL SOLAR RADIATION (MJ/m<sup>2</sup>)**



**The EverSummer programme ultimately proved that the Top Quality water-based coatings produced by Renner Italia effectively double the duration and resistance to outdoor weathering of wooden outdoor joinery, as compared to items treated with traditional products.**

# Description of coating systems tested

Test sample	Wood species	Preservative wood stain - 1 coat Flow coating	Qty g/mq	Intermediate base coat - 1 coat Flow coating	Qty g/mq	Sanding grit size	Top Coat - 2 coats vertical spray	Qty micron x 2
690	Pinewood Angle section	TOP QUALITY YM---M090/--T28	60-80	TOP QUALITY YL---M190/--T12	40-60	240	TOP QUALITY YO-30M390/--T26	200-225
691	Pinewood Finger-Joint Angle section	TOP QUALITY YM---M090/--T28	60-80	TOP QUALITY YL---M190/--T12	40-60	240	TOP QUALITY YO-30M390/--T26	200-225
692	Sapelli mahogany Angle section	TOP QUALITY YM---M090/--T28	60-80	TOP QUALITY YL---M190/--T12	40-60	240	TOP QUALITY YO-30M390/--T26	200-225
693	Teak Angle section	TOP QUALITY YM---M090/--T28	60-80	TOP QUALITY YL---M190/--T12	40-60	240	TOP QUALITY YO-30M390/--T26	200-225
694	American oak Angle section	TOP QUALITY YM---M092/--T28	60-80	TOP QUALITY YL---M190/--T12	40-60	240	TOP QUALITY YO-30M390/--T26	200-225

The samples of wooden windows tested under the EverSummer programme were installed with a south-facing tilt of 45° in the northern hemisphere and a north-facing tilt of 45° in the southern hemisphere.

Each sample, except for the American oak sample, was first treated with a coat of preservative wood stain YM---M090/--T28 (also available in colours T15, T21, T22 and T30).

The oak sample was treated with YM---M092/--T28 (also available in colours T15, T21, T22 and T30).



Next, an intermediate coat of YL---M190 (colour T12) was applied by flow coating.



For greater protection, spray-primer YL---M29X/--T12 can be applied, producing a better performance.



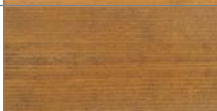
The window was finished with 2 vertically-sprayed coats of Top Quality YO-30M390/--T26 (also available in colour T11).


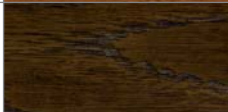


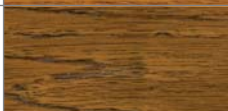


# Colour range

INTERMEDIATE and BASE COAT		
Series	Colour	
YL---M190	T12 Douglas fir Flow coating application	
YL---M290 YL---M291	T12 Douglas fir spray application	

TOP COAT		
Series	Colour	
YO-30M390	T11 Cypress	
YO-30M390	T26 Oak	

PRESERVATIVE WOOD STAIN - softwoods		
Series	Colour	
YM---M090	T15 Mahogany	
YM---M090	T21 Dark walnut	
YM---M090	T22 Walnut	
YM---M090	T28 Teak	
YM---M090	T30 Chestnut	

PRESERVATIVE WOOD STAIN - hardwoods		
Series	Colour	
YM--M092	T15 Mahogany	
YM--M092	T21 Dark walnut	
YM--M092	T22 Walnut	
YM--M092	T28 Teak	
YM--M092	T30 Chestnut	

## Note

The colours shown in the brochure are purely indicative.

Under normal conditions of use, shades may change according to the amount of sanding done by the customer and the place of origin of the wood species employed.

# Results of coating systems tested

	Test piece 690 Pinewood angle section	Test piece 691 Pinewood finger-joint angle section	Test piece 692 Sapelli mahogany angle section	Test piece 693 Teak angle section	Test piece 694 American oak angle section
<b>Chalking</b>	10	10	10	10	10
<b>Cracking</b>	10	10	10	10	10
<b>Blistering</b>	10	10	10	10	10
<b>Flaking</b>	10	10	10	10	10
<b>Gloss</b> Before exposure	27	26	26	26	27
<b>Gloss</b> After exposure	26	26	29	25	29
<b>Gloss</b> Difference	-1	0	+3	-1	+2



## Legend

- 10 = no defects
- 8 = traces of defects
- 6 = slight defects
- 4 = moderate defects
- 2 = severe defects
- 0 = very bad results

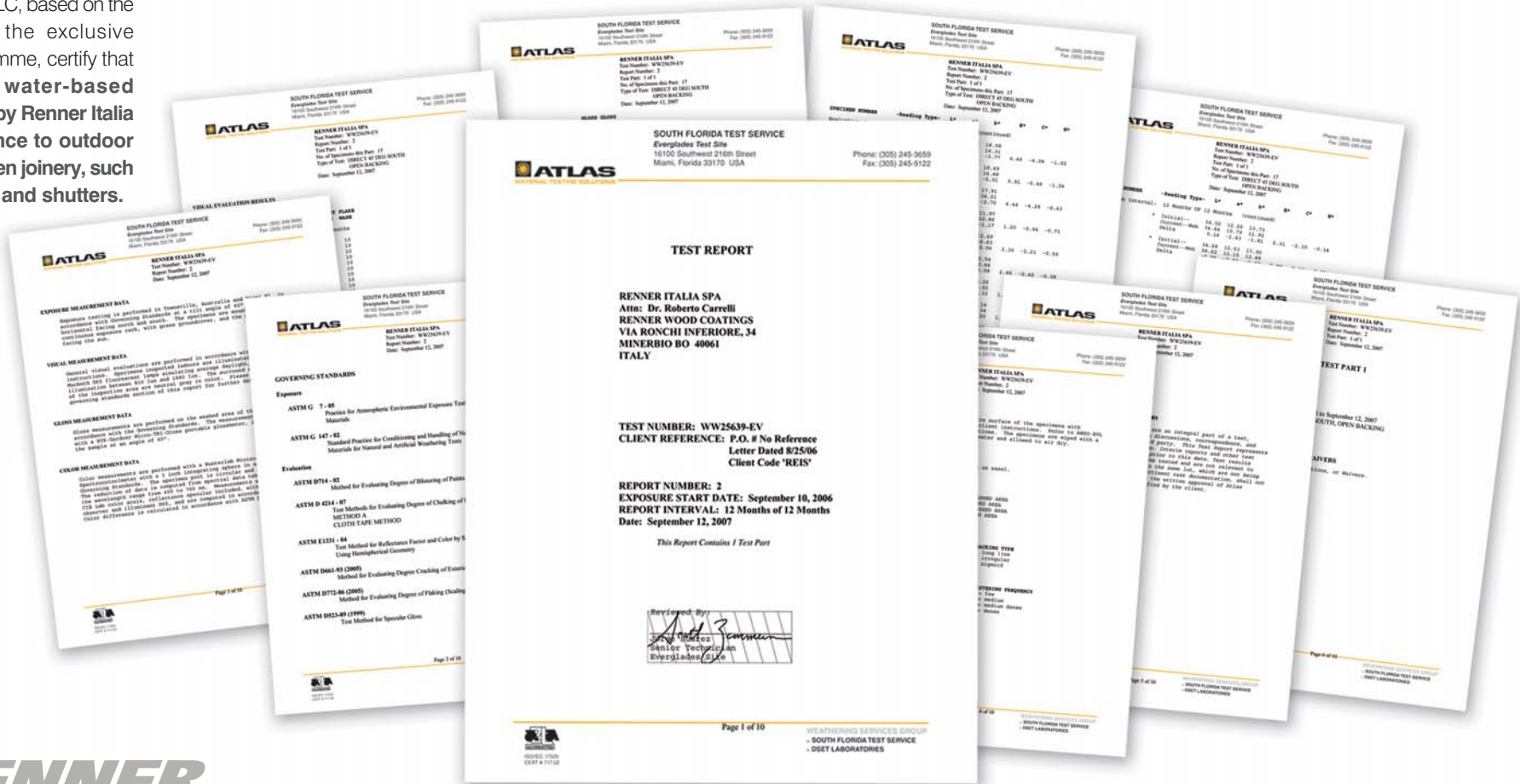
## Notes

Chalking: ASTM D4214-07. Cracking: ASTM D661-93 (2005). Flaking: ASTM D772-86 (2005). Blistering: ASTM D714-02. Gloss: ASTM D523-89 (1999).

**The results of the coating systems tested in the EverSummer programme showed a consistently perfect performance of the item exposed. No defects were found in any of the tests carried out. The gloss remained unvaried, within the limits of experimental error.**

# Top Quality Certifications

The certificates issued by Atlas Material Testing Technology LLC, based on the perfect results of the exclusive EverSummer programme, certify that the **Top Quality water-based coatings produced by Renner Italia** double the resistance to outdoor weathering of wooden joinery, such as windows, doors and shutters.





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