SCOTTISH LIME CENTRE TRUST

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Mauchline Roof Scape:

A detailed review of Scotland's built heritage's indigenous material needs was undertaken by the Indigenous Materials Project Team (a Project Team of the Scottish Stone Liaison Group) in 2001. The review highlighted the re-introduction of Scottish slate production as an immediate priority. With the last Scottish slate quarry closing around 1955, there is now a severe shortage of such Slate for maintaining Scottish slated roofs in conservation areas. As Slate hasn't been quarried in Scotland since the 1950s and supplies for replacement purposes are very limited. So it's best to reuse slates for maintenance and repairs wherever possible. The issue with this repair method is that it can only be undertaken by removing Slate from another roof. The re-dressing of secondhand material results in a loss of 30% to 40%, meaning that Scottish Slate is becoming a finite resource.

An analysis of roof types on the buildings in the target area was undertaken.

The results of this are shown below:

Roofing Materials:

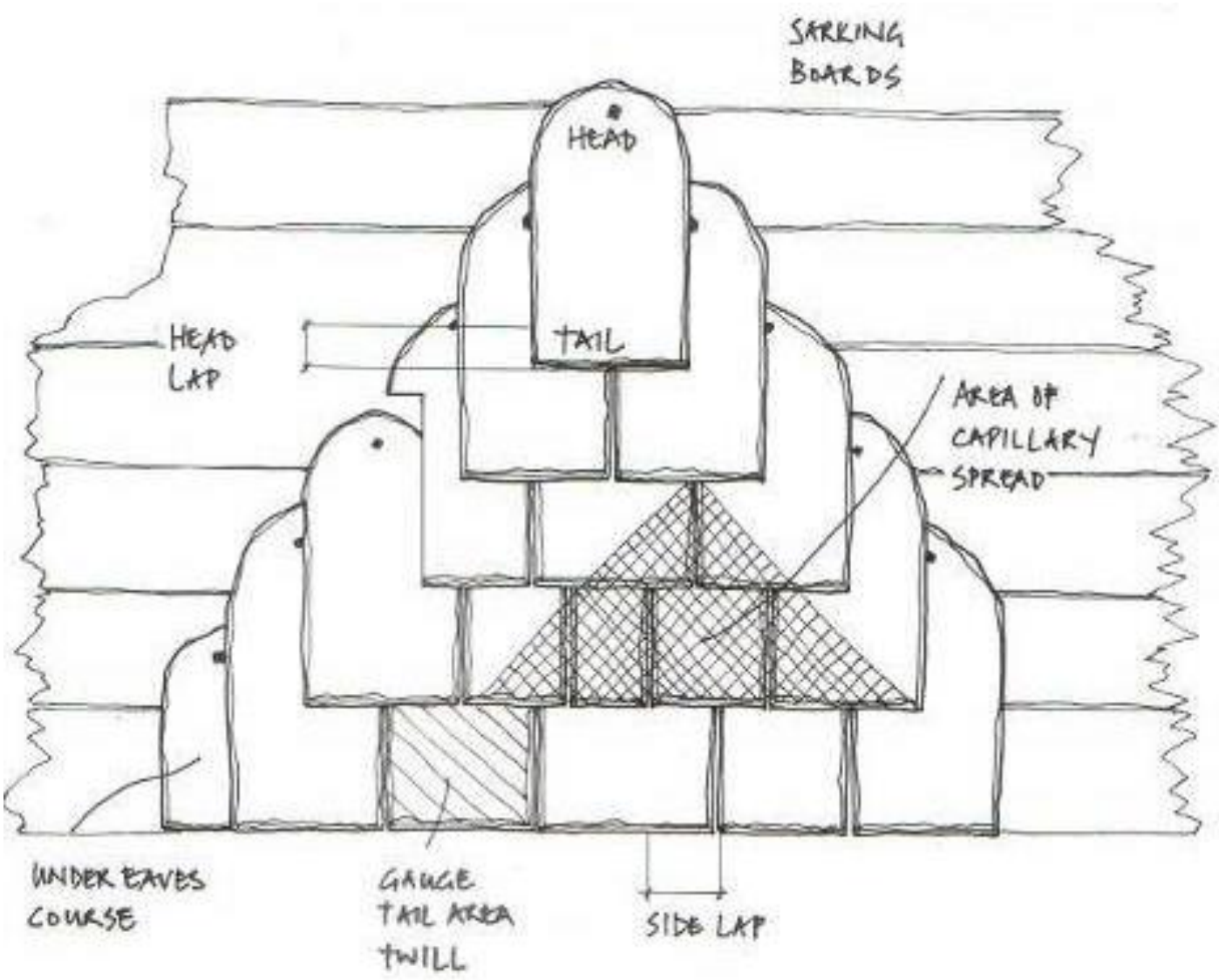
- Blue – West Highland Slate 38%
- Red – Welsh or Spanish Slate 36%
- Gray – Highland Boundary Slate 23%
- Green – Concrete Tile 3%

Auxiliary Materials:

- Cast-iron Gutters 44%
- PVCu Gutters 40%
- Lead Gutters 16%

Overall, 61% of the roofs are Scottish Slates laid in diminishing courses, and 36% are modern Spanish or Welsh slates laid in a consignment of the same length and width known as 'Tally'. Only 3% of the roofs looked at were new concrete tile.

Traditional Scottish Slating Practice & Terminology:



Slate Types:

West Highland Slate:

These slates are rugged and durable and have a distinctive ridged surface texture and tiny crystals of fool's gold (pyrite). The reflective sheen on the Slate is also a notable characteristic and Single Nailed.

Highland Boundary Slate:

These slates are smoother and lighter in colour than the West Highland Slate. The colour can vary from grey to green and purple, and it often has distinctive ribbon stripes on the surface and Single Nailed.

Welsh and Spanish Slate:

These slates are usually regular with two nail holes (Scots slates are typically less regular in shape and are single-nailed). They are grey to purple and thinner than the Scots slates.

Life expectancy cost comparisons 100 years cycle:

Roofing Product	Weight	Durability	Initial Cost Supply & Fix	Repair and Maintenance	Factor based on re-roofing frequency	TOTAL for the period
Tiles and Slates	Kg/m2	Years	£/m2	% of initial Cost	X factor	£/m2
Clay Tiles	63	40	£33.00	10%	2.5	£112.63
Concrete Tiles	51	30	£12.50	10%	3.33	£ 84.72
Fibre Cement Slates	21.4	30	£24.00	12%	3.33	£134.04
Imported Natural Slate	34.8	30	£29.00	15%	3.33	£155.61
Natural Welsh Slate	27.9	100	£46.00	12%	1.00	£ 55.52
Synthetic Slate	24.7	30	£28.00	12%	3.33	£148.98

Conclusion:

We can conclude that the target area in Mauchline has a large proportion of its original roof coverings and original auxiliary materials, with 61% of the roofs retaining traditional Scottish slate and slating practice and 60% of the roofs keeping cast or lead gutters and downpipes. This is a more significant proportion than most Scottish villages that have lost their original material to more modern replacements such as concrete tiles, imported slates, and PVCu gutters.

We recommend that it is of the utmost importance that Mauchline retains this high level of original roofing materials as it adds to the character of the target area and retains the heritage of the built environment. Roofs should be inspected regularly to spot potential problems as soon as they appear. Regular maintenance and repairs will ensure that your slate roof remains watertight and continues to perform well.

Common issues:

- broken, cracked or missing slates on the roof or ground, especially after bad weather
- dislodged slates at roof edges – slates here are particularly vulnerable
- A single missing slate will let in only a limited amount of water. But if not put back in place, the sarking (wooden boards) beneath will decay, leading to further slates loss, and poor repairs will only worsen the situation.

'Nail sickness' – one of the most common causes of problems with slate roofs – occurs when the iron nails used to secure slates to the sarking rust through. Individual slipped slates can be secured again, but there may come the point where the number of slates affected means this is no longer cost-effective; this is generally stated as when 20% of the total roof area is affected. Therefore, it may be better to strip back and reslate the entire roof.

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