

Mauchline CARS

Building Materials Audit
(stone, mortar and slate)

Abbot Hunter's Tower

- Both building stone and mortar analysed for matching purposes



Nance Tinnock's, Castle St

- The only 'blonde' sandstone to be analysed



Poosie Nansie's

- Almost certainly red sandstone rubble work under a later cement render and modern paint coating



15 Earl Grey Street



39a Loudon Street



Masonry styles - ashlar



Masonry styles – rubble gable end



Squared, snecked formal rubble



Roughcast or harled finish



Masonry distress and decay



Stone decay caused by water

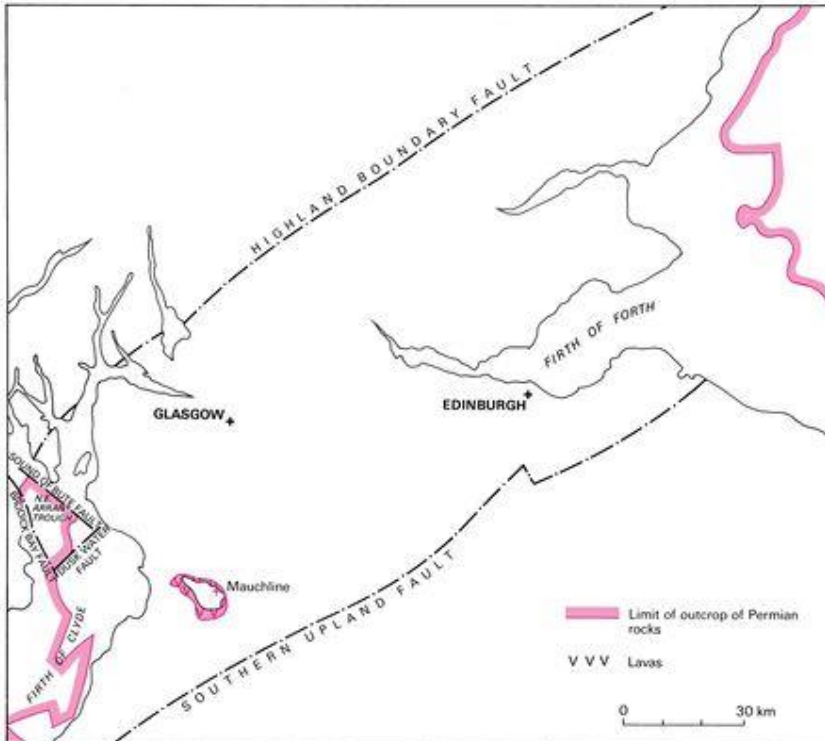


And again



Permian red sandstone in the Mauchline Basin

- Formed around 300mya where quartz grains are 'cemented' together with ferric iron oxide which indicates it was laid down in a terrestrial environment such as a desert and gives its distinctive red colour.



Matches for Mauchline's red sandstone include:



Corncockle, Knowehead and Locharbriggs quarries all from Dumfries & Galloway and



All of these can be sensitive to salt crystallization when in contact with de-icing salts on busy roads and may cause accelerated decay as a result

For Nance Tinnock's

- Blonde sandstones from Birchover, Blaxter or High Nick quarries in the NE of England would be suitable



Replacement stone



This work should be undertaken by appropriately skilled stonemasons;



Currently there are 12 week lead in times for procuring new stone;



Ensure all rainwater goods and roof work are in good order before replacing stone as part or full indents.

Scottish Slating

The roof covering is a building's first line of defense against the weather. Scottish slate is a long-lasting roofing material with a lifespan of up to – or beyond – 100 years is quite common.



Slate Types

- Scotland's geology has produced a form of slate that is relatively thin, with a dark tone and rough texture.
- We have a long history of slate quarrying; large quarries were established in Ballachulis and on the slate islands of Easdale, Seil, Luing and Belnahua
- They were also found on the Highland Boundary including Luss, Aberfoyle and Dunkeld.
- There are no slate quarries operating in Scotland today 2022.



Slate Types

West Highland Slate

- These slates are hard and durable. They have a distinctive ridged surface texture and tiny carystles of fool's gold (pyrite). The reflective sheen on the slate is also a notable characteristic, and Single Nailed.



Slate Types

Highland Boundary Slate

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



Slate Types

Welsh and Spanish Slate

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



Mauchline Roof Scape



Copyright OpenStreetMap and contributors, under an open license

Mauchline Roof Scape

- Blue – West Highland Slate 38%
- Red – Welsh or Spanish Slate 36%
- Gray – Highland Boundary Slate 23%
- Yellow – Concrete Tile 3%
- Overall, 61% of the roofs are Scottish Slates



Copyright OpenStreetMap and contributors, under an open license

Mauchline Roof Scape Materials

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



Copyright OpenStreetMap and contributors, under an open license

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

Repair mortars for

Should be based on

- Repointing
 - Harling
 - Render
 - Above eaves level masonry – chimneys etc
 - Again, all mortar work should be carried out when roof and rainwater goods have been repaired
- Natural hydraulic lime
 - Air limes
 - Modified limes
 - Not Ordinary Portland Cement (OPC)!

Indicative replacement mortars

Masonry type

- Rubble where joints are more than 15mm

Mortar type (nominally by volume)

- 1 part moderately hydraulic lime NHL 3.5 to 2.5 parts sharp, concrete sand (5mm down)

Indicative replacement mortars

Masonry type

- Formal squared, snecked rubble where joints are less than 12mm

Mortar type (nominally by volume)

- 1 part moderately hydraulic lime NHL 3.5 to 2.5 parts sharp, building sand (4mm down)

Indicative replacement mortars

Masonry type

- Fine ashlar masonry –
use duct tape to protect
the stone faces from
staining when repointing

Mortar type (nominally by volume)

- ‘Ashlar stuff’ bought as a
ready mix based on
feebly hydraulic lime NHL
2 and whiting filler
(crushed chalk) –
sometimes colour
matched

Indicative replacement mortars

Masonry type

- Above eaves level masonry (chimneys, stone or tile copes, parapet masonry etc)

Mortar type (nominally by volume)

- 1 part HL5 (modified hydraulic lime) to 2 parts concrete or building sand depending on joint sizes

All of these mortars

- Can be purchased as ready mixed mortars, colour matched to the original mortar;
- Should ideally be used during the 'lime season', typically April to September to avoid risk of frost damage;
- Should be applied by appropriately skilled operatives – they don't have to be stonemasons necessarily;
- Or come to one of our Lime Pointing courses and learn to do it yourself!

www.scotlime.org