



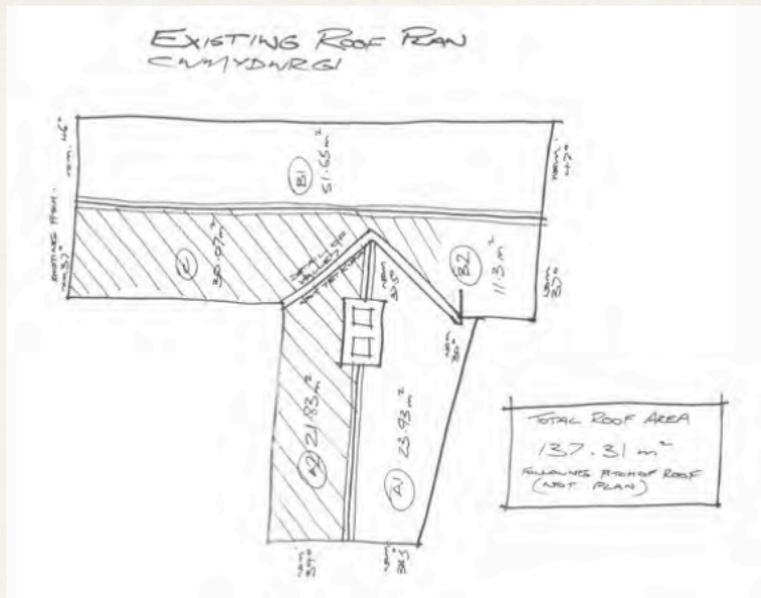
CWMYDWRGI TYDDYNOD

Roof Survey

Construction & Condition



Construction & Condition



Construction & Condition



The roof timbers are extensively rotted and collapsed which has allowed the slating to sag opening the joints in it.
Much of the torching has fallen away

Construction & Condition



The roof has suffered from a series of ineffective repairs and a long period of neglect

Construction & Condition



The slates are random sized from an unidentified local quarry and are in good condition. They range in length from 13 to 9 1/2 inches. There are 32 courses on both the main slopes.

Construction & Condition



The slates are laid in diminishing courses hung on wooden pegs from riven laths fixed with iron nails and fully torched in lime mortar.
Much of the roof has been grouted at the slates' tails and the perpendicular joints and slurried over large areas

Construction & Condition



The slating is gauged at one third lap. This is a simple system where the laths are spaced at one third of the slate length. The head lap is therefore also one third of the length which is generous and automatically reduces for as the slates reduce in length. The system is only applicable to small slates: large slates would have wastefully large head laps.

Construction & Condition



The slating has generally been laid with adequate side laps but there are examples where they are too small and would have resulted in leaks.

Construction & Condition



Undersized and rotted roof timbers and laths have allowed the slating to fold-in between the rafters producing an undulating surface. The crests of some of the undulations are so severe they will need to be eased to allow the slates to sit tightly together when the roof is relaid.

Construction & Condition



The eaves are formed with a conventional two layers of slate. The ridges are clay tile bedded and pointed. The chimney abutments are protected with crow steps and mortar flaunchings but without soakers or flashings

Construction & Condition



The inner leaf of the gable walls are set below the outer leaf. The slating butts up to the outer leaf without any form of weathering. This is thought to be a remnant of a former thatch roof. The junction of the slates and the outer leaf inevitably leak and crude attempts have been made to remedy this by coating with cement mortar. Also inevitably the rafters, laths and purlin ends have rotted.

Construction & Condition



The valleys are complex and have been constructed in two phases. The south valley shown here is a single cut in the upper two thirds. The lower section associated with the lower pitch roof inserted over the later rear door is open and lined with metal which has been made from what appear to be biscuit tins.

Construction & Condition



The north valley is swept in the upper third but single cut over the lower section. In both valleys the slates are fully bedded in lime mortar

Significance Of The Roof And Its Details

Generally the roof is a good example of a common type – small random sized slates peg hung to split laths – but a type which is rapidly disappearing and being replaced with single sized slating, centre nailed to sawn battens.

The most important features of the roof are the upper sections of the two valleys - the swept and single cut sections, and the double cut lower section of valley A2/C. Single cut valleys are very rare anywhere in the UK; only a few others are known to the author of this report, and all are in Wales. The latter is comparatively rare in Wales and is, to this author's knowledge, unknown in metamorphic slating outside Wales. These valley types which normally do not rely on the use of soakers to make them water tight, predate the general availability of lead for soakers and demonstrate the highest level of slater's skill. The use of galvanised metal sheets to weather the lower sections of both valleys appears to represent a period when soaker technology was known in the region but lead was unavailable or too expensive to be used at least on a building of this status.

A level of importance cannot be attributed to the peculiar butting of the slating against the outer leaf of the verges of slopes B1, B2 and C without further research into why it exists. As things stand it can only be regarded as a defective detail.

Technical Assessment

Some features of the roof are vulnerable to leaks but these risks could be eliminated by adopting modern practice without losing the traditional detailing.

Head fixing with pegs should be retained for authenticity but it is possible to use nail fixing in battens if complete authenticity is not required. However, peg fixing relies on torching or head bedding (pin pointing) to improve the resistance to wind uplift. If torching is not possible then head bedding should be adopted.

Where the roof slopes are heavily convex (in effect forming a hip) as in slope B1 it will be impossible to slate across the 'hip' without risking leaks. There are two options to overcome this. Firstly, a definite mitred hip could be formed and weathered with lead soakers. This would change the character of the roof. Alternatively, the sharpness of the 'hip' could be reduced by packing out over the rafters and narrower slates selected for the area. Narrower slates will lie more closely to the curve without the tails or lower corners kicking. Even if the latter option is adopted it may be necessary to soaker this area.

The crow step weathering of the chimney although traditional is not effective in preventing water penetration at the slate abutments. Lead soakers, one per course, with mortar flaunching is the most commonly adopted alternative.

Technically the single and double cut valleys can be effective and water-tight if carefully constructed but for complete security against leaks lead soakers could be included in each course. The existing open valley is undersized by modern standards and relied on the mortar bedding to prevent lateral leaks. The minimum width normally adopted for these valleys with un-bedded slating is 4 inch with the lead extending further under the slating than the existing and the inclusion of a tilt to support the slates.

The verge abutments are simply defective and need to be redesigned. This may involve carrying the slating over the outer leaf or introducing a stepped damp course into the gable.
