St Peter's Church

Highfields

Leicester

Roof condition

Heritage Crafts & Building Skills Centre Ltd

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The purpose of the roof survey was to establish the condition of the roof slope of the Church of St Peter's. A total of 6 areas were opened to check the condition of the fixing's and the design of the slating and roof structure.

The areas that were opened up are as follows:

The Chancel (South East corner)
The South Transept (East elevation)
The Nave North (West corner)
The North Aisle
The South Aisle
The South Porch (West elevation)

The Survey was carried out on 22nd April 2016. The weather was cold and dull.
Present on site was

Richard Jordan HC&BSC
Matthew Siddons HC&BSC
Jack Jordan HC&BSC
Richard Brooks PR Architects

The survey was carried out using a lorry mounted cherry picker and ladder access.

The Chancel

The Chancel has a apse end with close mitred hips. The roof coverings on the chancel are Swithland slates and were opened up from course 4 down. The slating lay well and tight across the whole area. The slates were centred fixed using 2 large copper nails per slate, with the head of the slates cut to form a 4 sided cut slate. This is not typical of Swithland slates which are generally head fixed over lath or shoulder fixed nailed to boards. The slate batten was nominal 2" x 1" fixed to a 3.5"x 3.5" rafter with a 1.25" x 1.75" counter batten placed on top of the rafter. The batten and counter batten were fixed with steel nails.

The longest slates were 24.5" on the over eave slate dropping to 19" on course 4. the widest slate was around 12" and the narrowest slate was around 3". The pitch of the roof was 55 degrees and the slates had minimum 2.75" to 3" head lap

There was no lime mortar bedding or torching to this area of the roof.


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The South Transept

The roof coverings on the South Transept are Swithland slates and were opened up from course 4 down. The slating did not lay as well across this area with repairs being carried out around the eaves to various standards. The slates were head fixed using 1 large copper nail per slate. This is typical of Swithland slates which are generally head fixed over lath or nailed into the batten. The slate batten was nominal 2" x 1" fixed to a 6"x 3" rafter and boarded from the underside of the rafter. The battens were fixed with steel nails. There was signs of lime mortar over the rafter in between the slate batten and a small amount of torching.
The longest slates were 32" on the over eave slate dropping to 26" on course 4. the widest slate was around 14" and the narrowest slate was around 4.5". The pitch of the roof was 55 degrees and the slates had minimum 2.75" to 3" head lap.

The Nave

The roof coverings on the Nave are Swithland slates and were opened up from course 2 down. The slating did not lay as well across the area and also against the tower (approx 4m from the tower) repairs had been carried to various standards and quality. The slates were shoulder fixed using 2 large copper nails per slate. This can be typical of Swithland slates but generally nailed into boards not batten. The slate batten was nominal 2" x 1" fixed over a thin counter batten which appears to be fixed over the plaster laths which are laid over the rafters. We could not gain access to measure the rafters. The battens were fixed with steel nails. There was no lime mortar in this area.
The longest slates were 24" on the over eave slate dropping to 22" on course 2. Care should be taken when using Swithland slates as the length and width does not calculate when using BS5534 for Pitched Roofing, it is the skill of the craftsman to understand how these slates with work through knowledge and understanding. The pitch of the roof was 55 degrees and the slates had 2.5" head lap. This construction is not un common, but the chance of loosing the plaster ceiling whilst work to the slating is carried out is highly likely. A internal scaffold deck will be required for both health & safety whilst working on the roof and to gain access for checking the plaster ceiling.
Once away from the tower area there are some slipped and damage slates but in general the slating looks good.

The North Aisle

The roof coverings on the North Aisle are Swithland slates and were opened up from course 5 down. The slating did not lay as well across the area and repairs had been carried to various standards and quality. The slates were head fixed using 1 large copper nail per slate fixed directly into the batten. This is typical of Swithland slates. The slate batten was nominal 2" x 1" fixed over a 2" x 1" counter batten which appears to be fixed over a ceiling which was laid over the rafters. We could not gain access to measure the rafters. The battens were fixed with steel nails. There was no lime mortar in this area.

The longest slates were 30.5" on the over eave slate dropping to 26.5" on course 2. Care should be taken when using Swithland slates as the length and width does not calculate when using BS5534 for Pitched Roofing, it is the skill of the craftsman to understand how these slates will work through knowledge and understanding. The pitch of the roof was 35 degrees and the slates had between 2.75" & 3.75" head lap. I feel that the head lap should be increased slightly due to increase deluge rain. Some slate head laps had shale placed over them to increase the head lap and this technique was very common, but most modern day's roofers think this is unnecessary. Care must be taken not to miss a weak head lap and not adding a piece of shale. Increasing the head lap will help in this instance.

The South Aisle

The roof coverings on the South Aisle are Swithland slates and were opened up on course 2. The slating did not lay as well across this roof area and repairs were carried out to various standards and quality. The slates were head fixed using 1 large copper nail per slate. This is a typical way of fixing Swithland slates. The slate batten was nominal 2" x 1" fixed over a 2"x 1" counter batten which is fixed over the plaster laths, which are laid over the rafters. We could not gain access to measure the rafters. The battens were fixed with steel nails. There was no lime mortar in this area.
The pitch of the roof was 35 degrees and the slates had 2.5" head lap.
This construction is not uncommon, but the chance of loosing the plaster ceiling whilst work to the slating is carried out is highly likely. An internal scaffold deck will be required for both health & safety whilst working on the roof and to gain access for checking the plaster ceiling.

The South Porch

The roof coverings on the South Porch are Swithland slates and were opened up on course 3 & 2. The slating did not lay as well across this roof area and repairs have been carried out to various standards and quality. The slates were centred fixed using 2 large copper nails per slate, with the head of the slates cut to form a 4 sided cut slate. This is not typical of Swithland slates which are generally head fixed over lath or shoulder fixed nailed to boards. The slate batten was nominal 2" x 1" fixed to a 2" x 1" diagonal counter batten placed on top of a type of horse hair felt laid over a boarded roof construction. The batten and counter batten were fixed with steel nails.
The longest slates were 24" on the over eave slate dropping to 21" on course 3. The pitch of the roof was 55 degrees and the slates had 3" head lap
There was no lime mortar bedding or torching to this area of the roof.



Other roof areas not opened up

The North Transept

The Roof of the North Transept and Vestry has Swithland slates laid to a pitch similar to the Nave. The slates come down into a horizontal lead gutter. Work has been carried out to the gutter (not Recent) and the slates have been fixed back using lead tingle. The slating to these areas are in poor condition compared to the Nave. We did not remove slates from these areas and have no idea of construction.

The North Porch

The Roof of the North Porch and has Swithland slates laid to a pitch similar to the Nave. The slating in this area is not great compared to the Nave. Repairs were carried out at various locations on the porch but vary in standard, quality and types of slates used. We did not remove slates from this area and have no idea of construction.

Conclusion

The roof slopes of the Church of St Peter's

The main areas of the church are in reasonable condition with the exception of the Nave next to the tower.
The lower roofs are in a poor condition due to lack of maintenance and the pitch of the roof slopes. Swithland slates are no longer available and care needs to be taken in finding a replacement to match the existing.
All Slating details are working in the main and should be retained. The head laps to the both Aisles should be reviewed and re-worked using BS5534
The lead work has worked but is now ready for a full overhaul and replacement, whilst improving certain details mainly the gutter to the South and North Transepts and the buttress to the South and North Porch.

Lead details need to be reviewed and replaced to LSA standards

Recommendation

The roof slopes to:

The Chancel should be repaired using Swithland slates taken from areas of the church that will need replacing and that are hidden from the main view. I recommend the slopes on the North side of the church.

The Nave In the main this can be repaired using Swithland slates taken from areas of the church that will need replacing and that are hidden from the main view. I recommend the slopes on the North side of the church. The areas on both the North and South side of the Nave and approximately 4-5 metres from the tower should be stripped and relayed to the original batten which could be re-fixed with screws if the nail has failed. The short fall of slates should be made up from the North slopes of the church.

The South Transept should be repaired using Swithland slates taken from areas of the church that will need replacing and that are hidden from the main view. I recommend the slopes on the North side of the church.

The South Aisle This area should be stripped and recovered using slates from the North slopes of the church to make up the shortfall of slates. The batten and slate fixing details should be kept as original.

The roof slopes to

The north and South Porch This area should be stripped and recovered using slates from the North slopes of the church to make up the shortfall of slates. The batten and slate fixing details should be kept as original.

The North Aisle This area should be stripped and recovered using New slates to match as close as possible. The batten and slate fixing details should be kept as original.

* The North Transept and Vestry This area should be stripped and recovered using new slates to match as closely as possible. The batten and slate fixing details should be kept as original.

* A calculation should be carried out as there maybe sufficient slates to cover some of these areas

Care should be taken when laying Swithland slates as the length and width does not calculate for a high proportion of the slates when using BS5534 for Pitched Roofing, it is the skill of the craftsman to understand how these slates shall work through knowledge and understanding.