HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

Round Toll House, Pollokshaws, Glasgow

Re-slating works and other repairs

The views expressed in commissioned case studies are those of the authors and do not necessarily represent those of Historic Environment Scotland.

While every care has been taken in the preparation of this case study, Historic Environment Scotland specifically exclude any liability for errors, omissions or otherwise arising from its contents and readers must satisfy themselves as to principles and practices described.

This case study is published by Historic Environment Scotland, the lead body for the country's historic environment.

This publication is a web publication and is available for free download from the Historic Environment Scotland website:

www.historicenvironment.scot/refurbishment-case-studies/

All images unless otherwise noted are by Historic Environment Scotland.

This publication should be quoted as:
Historic Environment Scotland
Refurbishment Case Study 24

Historic Environment Scotland Refurbishment Case Study 24

The Round House, Pollokshaws, Glasgow

Re-slating repairs and other works

Moses Jenkins

Acknowledgements

The principal project partner in this work was Glasgow City Council.

This project followed a research project by Emma-Fleur Grof.

Contents

1. Introduction

This refurbishment case study describes external repairs which were carried out to the Round House, Pollockshaws, Glasgow. The building is of considerable historic and architectural significance, and has been category B-listed since 1970. It is believed the building dates from the 1750's when the first turnpike roads were established in Scotland and it is the only circular form toll house left remaining in Glasgow. Toll Houses were a common sight along the main Scottish routes in the 17th and 18th centuries; in the Pollockshaws area alone there had been six at one time, including the Round Toll. It served as a toll house until the 1880's after which it had a range of uses including carriage hirer, public house and a private dwelling house until the 1950's when it became unoccupied (Figure 1). The period as a pub appears to have been particularly lively around the annual Pollockshaws Races, and many misdemeanours and scuffles were recorded.

The building is constructed of squared and coursed rubble walls with a conical slated roof and a central chimney stack. Changes to the road layout in recent decades have resulted in the Toll House site becoming stranded in the middle of a three lane roundabout. This has left the building without any substantive use and maintenance regimes have been affected as a result. However, given the significance of the building, the decision was taken by the Local Authority to carry out a program of repairs to the external envelope to ensure it did not fall into further disrepair.

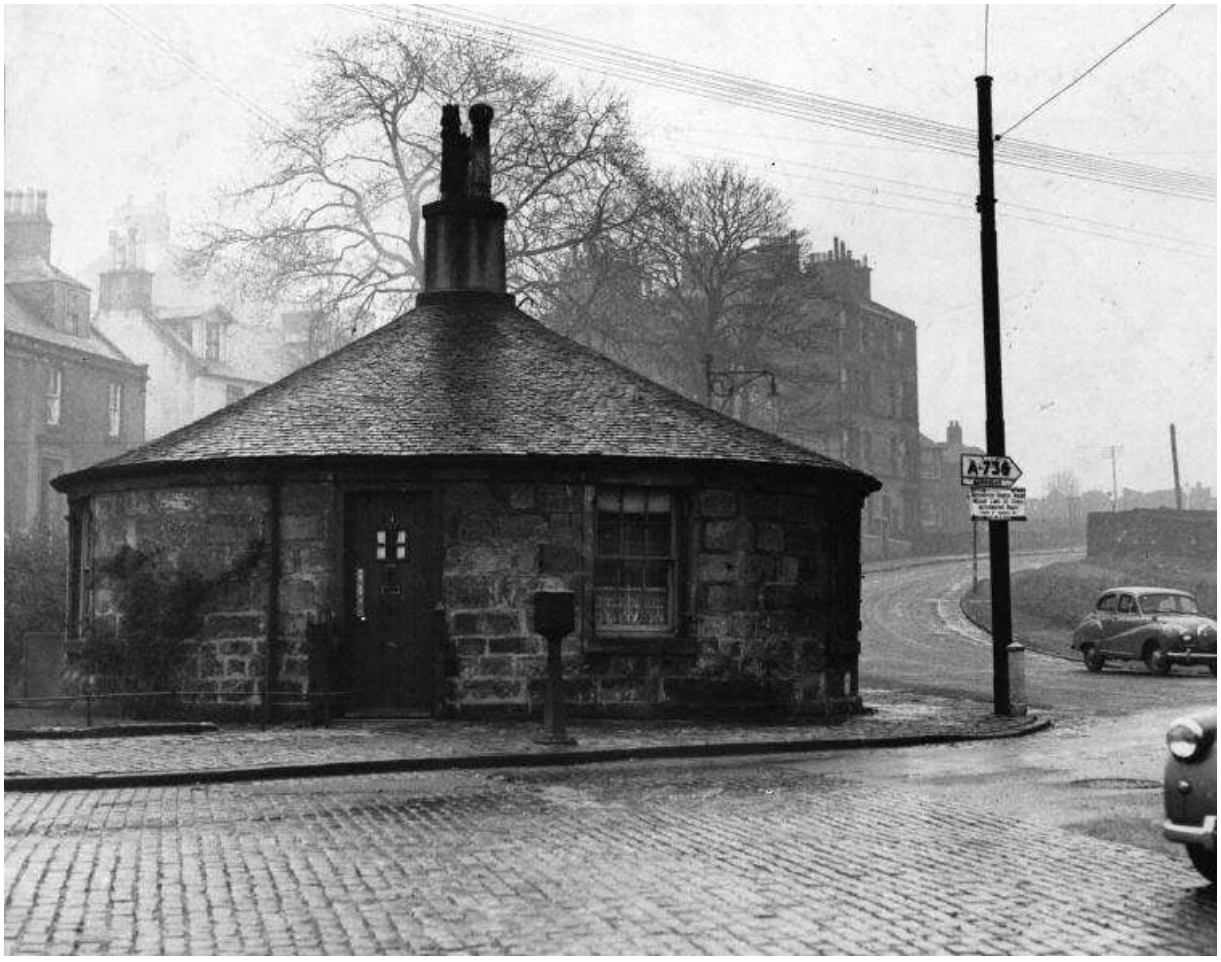

Figure 1. The Round Toll House in 1954 (Copyright Newsquest, licensor www.scran.ac.uk)

2. Development of the project

Representation from the local Pollokshaws Heritage Group over the condition of the building led to the creation of a programme of works drawn up by Glasgow City Council with contributions from Historic Environment Scotland. Following this, the works were tendered and a roofing contractor was appointed to carry out re-roofing works and other repairs as necessary to make the building wind and watertight. The intention was for the relevant repair and replacement works to be carried out on the building and the creation of a robust maintenance schedule. This would allow the Council and the Heritage Group to inherit responsibility for the upkeep and conservation of the Round Toll going forward, guided by a programme of checks and actions.

3. Survey of the building

Prior to work commencing, a thorough survey of the building was undertaken to ascertain what repairs were required. It was found that the masonry was generally in good condition with only a small amount of repointing required. Defects were found with the rainwater goods and many areas of the rhones and downpipes required repair. However, the most significant defects were found in the roof structure (Figure 2). It had been expected that some slate repair and small areas of re-slating would be required. However, following a survey of the roof it was found that significant amounts of water had penetrated as a result of damage to the roof covering (Figure 3), missing flashing where the roof met the central chimney stack, and also at wall head level where blocked gutters had led to water ingress. This damage had resulted in significant deterioration in sarking and roof timbers and it was clear that several rafters needed replacing.

Figure 2. Water ingress through the chimney and the skew junction had resulted in the rotting and settlement of rafters, seen here middle left.

Figure 3. Missing slates and damaged sarking were some of the defects identified.

4. Significant defects and repair decisions.

As several rafters needed replacing, and much of the sarking was defective, the decision was taken to remove the roof covering and re-slate. Despite this deterioration of the roof structure, the slates themselves were generally in good condition with little sign of what is termed “nail sickness”. This occurs when the nails which hold slates in place have rusted away or when decay and softening of the top of the slate takes place around the nail hole. As the slates were sound it was also decided that they should be reused following careful removal and re-sizing. Scots slates are durable and long lasting and this should generally be the approach when re-slating a building. During any removal process and re-sizing there will invariable be losses, but they can be made up with salvaged slates. This is a more sustainable approach to re-slating work using Scottish slate, minimising waste and ensuring that a finite resource remains available for as long as possible.

5. Removal of slates

As the slates were in good condition they were removed with care so they could be re-used. Rather than using a slate ripper to free the slates from the sarking board each slate was removed by hand using the claw of a hammer to ease nails free where required (Figure 4). This resulted in a large proportion of slates being salvaged for re-use. Re-use should be attempted wherever possible and appropriate to do so, due to finite stocks and the discontinuation of Scottish slate quarrying and production. Following removal from the roof, the slates were re-dressed where required and gauged for size (Figures 5 & 6). They were then set out by size on the scaffold to allow re-laying following traditional Scottish practice, in diminishing courses (Figure 7).

Figure 4. The removal of slates at the Round Toll was undertaken with care in order to maximise the amount of slate which could be re-used.

Figure 5. A simple gauge was used to sort slates which had been removed from the roof into sizes for use in re-slating.

Figure 6. Using the slate gauge to grade slates for size prior to re-use.

Figure 7. The sized slates laid out on the scaffold ready for re-laying.

6. Roof timber repairs

Following the removal of slates from the roof there was found to be decay in several areas of sarking board and on supporting roof structure beneath. A number of rafters were found to have decayed where they met the timber at the wall head. This required the replacement of entire rafters in some cases. In others only partial replacement was required (Figure 8). A large number of the structural timbers were found to be in sound condition, however, and where this was the case these were left in situ. The timber support structure of the roof was strengthened by the insertion of lateral timber braces between rafters (Figure 9). Where sarking boards required to be replaced these were laid according to traditional Scottish practice with a “penny gap” between each board. This aids ventilation and also allows for expansion and contraction in the sarking timbers. Standard practice on pitched roofs would see the sarking timbers laid horizontally between the ridge and the eaves. However, due to the conical shape of this roof, these were laid vertically and angularly cut with increasing width towards the eaves to account for this shape (Figure 10).

Figure 8. Repairing roof timbers; original rafters were retained where in good condition with a number of complete and partial replacements used. Additional lateral bracing was also introduced.

Figure 9. Where rafters met the wall head additional fixings were used to add strength.

Figure 10. New sarking boards were laid onto the repaired roof structure ahead of re-slating work commencing.

7. Re-slating

As the slates were removed from the roof with care, a high proportion of these were re-used, and only around 10% of slates required to be replaced. The replacement slates were sourced from the contractor’s reclaimed stock to match the existing roof covering.

The traditional Scottish practice of laying slates in diminishing courses was followed at the Round Toll. As the size of slate produced by Scottish quarries was mostly of random widths and lengths, laying in diminishing courses ensured the most efficient use of the slate produced by the quarries. This means that the largest slates are laid in the courses nearest the wall head (Figure 11) with the smaller slates laid nearer

the ridge, the size of slates therefore diminishing from large to small between wall head and ridge (Figure 12). The slates at the Round Toll House were laid in this way and were fixed in place using a single non-ferrous nail in the centre of the slate head. In Scottish practice slates are trimmed at the shoulders of the slate head prior to laying to make it easier to move slates aside to access any that become broken or damaged. This type of slate is known as 'squared and shouldered' (Figure 13).

A further feature of Scottish slating practice which was used at the Round Toll was the double lapping of slates i.e. each slate covers part of the slates in two courses below. The head and side lap in such slating must always be large enough to prevent wind driven rain penetrating underneath the slate. The head lap or "cover" is the distance the leading (bottom) edge of a slate overlaps the nail hole of the slate two courses below and is usually between two and three inches decreasing to under two inches at the top of the roof to allow the smaller slates to lie properly. The varying widths of slate mean that it is impossible to maintain an even side lap at all times. The side lap is the distance between the edge of a slate and the edge of the slate it part covers in the preceding course. Generally the side lap is worked out by placing the perpendicular joint between two slates in a course approximately centrally to the slate in the course below. As this is difficult to maintain in practice with slates of varying sizes it is usually assumed that the side lap will be at least two inches. One and a half slates are often used on the edges of the slopes, while narrow bachelor or 'in-bands' slates are used mid-row to regulate the side lap.

Another traditional technique used here is the practice of 'cheek nailing' the slates. This is commonplace across Scotland. This entails the double-nailing of slates on certain courses to further secure the arrangement of individual slates. Typically this would occur every sixth course, however, they can be found as little as three courses apart; particularly in regions of more severe weather patterns as this holds the slates tighter to the sarking.

Figure 11. The first three courses of slate re-laid at the Round Toll using the largest slates at the eaves course, using a single nail at the head, as is traditional practice.

Figure 12. This example of traditional Scottish slating practice, of random widths of slate laid in diminishing courses, was followed during the re-laying of the slate roof at the Round Toll.

Figure 13: A Scots slate, squared and shouldered with a single nail hole (copyright BGS / NERC licensor www.scran.ac.uk).

8. Repairs to the chimney

A small amount of re-pointing was carried out on the central chimney stack where this was found to be necessary; a Natural Hydraulic Lime (NHL) 5 lime binder with sharp sand was used for the mortar in this work. Additionally, the existing chimney can was re-bedded and a galvanised Chinese Bonnet cover with bird mesh installed. This arrangement maintains ventilation throughout the chimney stack whilst at the same time reducing water ingress to the flue and preventing birds gaining access. It was proposed at one stage to take down the central chimney stack but this was dismissed as to do so would have a significant impact on the architectural integrity of the building, as well as removing an important means of circulating air in the empty building.

9. Repairs to lead flashing

Where lead flashing had previously been in place this had, in a number of places, become lost or damaged. The decision was taken to renew flashing in a substitute material which was fixed in place with stainless steel fastenings. This was chosen in order to reduce the likelihood of theft as the building was considered to be vulnerable due to its location and the fact it is unoccupied. In general, however, the use of lead for roof repairs in traditional building will prove more durable than substitute materials. Guidance on methods of avoiding lead theft can be found in Short Guide 2.

10. Repair of rainwater goods

In addition to the works to the roof structure the associated rain water goods were also repaired. All gutters, downpipes and surface drains were cleared of vegetation, leaves and blockages where appropriate. Gutters and downpipes were re-painted with an undercoat and two topcoats following a thorough cleaning to remove corrosion, dirt and grease. In some areas the joints of the rhones needed to be replaced. This was done with a flexible jointing compound sometimes called ‘plumber mait’. This material allows a little movement of the joint caused by expansion and contraction of the cast iron; hard setting compounds such as linseed oil putty and other fillers can cause cracking of the metal. Two new lengths of downpipe were required and these were sourced to match the original profile. The new castings were painted prior to installation with two coats of a zinc based primer, one coat of micaceous iron oxide and two coats of gloss paint. All joints between sections of gutter and downpipe were checked and the entire rainwater disposal system left in good condition.

11. Other work

A number of other small repairs were executed as part of the works. Some re-pointing using lime mortar was carried out to masonry where joints were open. Plant growth which had sprung up around the building was removed and the LED lights, installed in an effort to deter vandalism as part of previous work, were cleaned.

Finally, the inside of the building was cleared of debris to ease maintenance in the future.

12. Future maintenance

As with all buildings the long term future of the Round House depends on regular maintenance. Much of the decay which led to the need to carry out the repairs described above was a result of a lack of maintenance. To avoid a repeat of this situation, a maintenance plan will be drawn up to ensure the building does not slip back into disrepair. This will include planned tasks such as the cleaning of gutters, downpipes and drains and also regular inspection to detect small problems such as slipped slates which can then be repaired. Further details regarding maintaining traditional buildings can be found in Short Guide 9.

13. Conclusion

The Round Toll House, Pollockshaws is a building which, despite its difficult location, is of considerable heritage and architectural value. The repairs described in this Refurbishment Case Study will help ensure the long term future of the building. The re-slating work was conducted using traditional Scottish practice and was executed in a way which ensured a high proportion of the slate removed from the roof was re-used, an inherently sustainable approach. These repairs, as well as good maintenance going forward, will help prevent further decay to the fabric of a well-known landmark in Pollockshaws.

Refurbishment Case Studies

This series details practical applications concerning the conservation, repair and upgrade of traditional structures. The Refurbishment Case Studies seek to show good practice in building conservation; some describe projects supported by Historic Environment Scotland, and some are entirely privately resourced projects. The results of some of this work are part of the evidence base that informs our technical guidance. At the time of publication there are 24 case studies covering measures such as repairs to masonry, upgrades to windows, walls and roof spaces in a range of traditional building types such as tenements, cottages and public buildings.
All the Refurbishment Case Studies are free to download and available from the HES website ***https://www.historicenvironment.scot/refurbishment-case-studies/***

Technical Papers

Our Technical Papers series disseminates the results of research carried out or commissioned by Historic Environment Scotland, mostly related to improving energy efficiency in traditional buildings. At the time of publication the series has 23 titles covering topics such as thermal performance of traditional windows, U-values and traditional buildings, keeping warm in a cool house, and slim-profile double-glazing.
All the Technical Papers are free to download and available from the HES website ***https://www.historicenvironment.scot/technical-papers***/

INFORM Guides

Our INFORM Guides series provides an overview of a range of topics relating to traditional skills and materials, building defects and the conservation and repair of traditional buildings. At the time of publication the series has over 50 titles covering topics such as: ventilation in traditional houses, maintaining sash and case windows, domestic chimneys and flues, damp causes and solutions improving energy efficiency in traditional buildings, and biological growth on masonry.
All the INFORM Guides are free to download and available from the HES website ***https://www.historicenvironment.scot/inform-guides/***

Short Guides

Our Short Guides are aimed at practitioners and professionals, but may also be of interest to contractors, home owners and students. The series provides advice on a range of topics relating to traditional buildings and skills.
All the Short Guides are free to download and available from the HES website ***https://www.historicenvironment.scot/short-guides/***