Rother District Council

WINDOWS IN BEXHILL TOWN CENTRE CONSERVATION AREA

Technical Advice Note 3

Overview and Scrutiny version - 12 September 2022

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Technical Advice Notes (TANs)

1. We have produced a series of Technical Advice Notes (TAN) to support the Adopted Development Plan (Core Strategy 2011-2028; Development and Site Allocations Plan; and made Neighbourhood Plans). TANs provide technical advice to developers and decision-makers but are not adopted policy documents and should not be read as such. TANs do not set out new planning policy. The TANs may be updated from time to time to reflect changing circumstances or best practice.

2. This guide should not be referred to for works to buildings outside of the Bexhill Town Centre Conservation Area or to Statutorily Listed Buildings.

Introduction

3. This Technical Advice Note explains how adopted Development Plan policy will be applied in situations where applications to alter or replace windows in the Bexhill Town Centre Conservation Area are submitted. Relevant policies are:

   - Policy DHG9 of the Rother Development and Site Allocations (DaSA) Local Plan (2019); and
   - Policies BX2, EN2, EN3, SRM1 and OSS4 of the Rother Local Plan Core Strategy (2014);

4. This Technical Advice Note has been prepared to provide advice on how the Council's adopted planning policies should be applied to planning applications for alterations to, or replacement of, windows within the distinctive special character of the designated Bexhill Town Centre Conservation Area.

When planning permission is required

5. Repairs, maintenance, and minor improvements to windows and doors, such as repainting, do not normally require planning permission. For dwelling houses, the insertion of replacement windows of a similar appearance is often permitted development[1], but homeowners are advised to seek advice and a formal decision as to whether planning permission is required, to submit an application for a Certificate of Lawful Development – Proposed[2].

6. Flats and maisonettes, as well as commercial buildings, do not benefit from permitted development and therefore replacements of, or alterations to, windows and doors require planning permission.

Legislative and Policy Framework

Planning (Listed Building & Conservation Areas) Act 1990

7. Section 72 of the Planning (Listed Buildings and Conservation Areas) Act 1990 confers a statutory duty to local planning authorities when exercising planning functions, to pay special attention to the desirability of preserving or enhancing the character or appearance of that area.

National Planning Policy Framework

8. The National Planning Policy Framework[3] is a national policy document which sets out the criteria for making planning decisions in conjunction with local policies. Though not exhaustive, paragraphs 8, 130 and the entirety of Section 16 which relates to conserving and enhancing the historic environment are relevant to planning applications for replacement doors and windows in Conservation Areas.

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[1] The legislation is set out in the Town and Country Planning (General Permitted Development) (England) Order 2015 ("the Order") as amended. The Order and subsequent amendments can be found at: http://www.legislation.gov.uk/uksi/2015/596

[2] http://www.rother.gov.uk/article/8714/Submit-to-the-Council-an-application-for-a-Lawful-Development-Certificate-for-a-proposed-use-or-development

[3] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

Local Plan Policy

9. When making planning decisions, the local planning authority will consider the Local Plan as a whole, as well as any material planning considerations. However, to explain how proposals for alterations to windows and doors in the Bexhill Town Centre Conservation Area are considered under current policy, the following parts of the Local Plan are highlighted:

Rother Local Plan Core Strategy[4]

- Policy BX2 (Bexhill Town Centre)
- Policy EN2 (Stewardship of the Historic Built Environment)
- Policy EN3: Design Quality
- Policy SRM1: Towards a low carbon future
- Policy OSS4: General Development Considerations

Rother Development and Site Allocations (DaSA) Local Plan[5]

- Policy DHG9

Other policies

10. Rother District Council has also adopted other strategies and policies that are considered to be relevant to this technical advice note.

Rother Environment Strategy 2020-2030

11. Rother District Council declared a Climate Emergency in September 2019 and pledged to be carbon neutral by 2030. In September 2020, the Rother Environment Strategy 2020-2030 was adopted. It defines priority areas and sets pledges to meet its target and these include:

- Green economy – working with partners to encourage retraining and reskilling in retrofit, insulation and environmentally friendly industries;

[4] https://www.rother.gov.uk/wp-content/uploads/2020/01/Adopted_Core_Strategy_September_2014.pdf

[5] https://www.rother.gov.uk/wp-content/uploads/2020/01/DaSA_Adopted_December_2019_Web.pdf

- Sustainable waste management – encouraging a focus on preventing waste through the use of less materials, re-use and less hazardous materials and preparing for re-use through cleaning, repairing, refurbishing and repairing.
- Construction and existing buildings – seeking funding to support retrofitting existing housing throughout the district.

12. The Council is a member of the UK Green Building Council, which seeks to radically improve the sustainability of the built environment, by transforming the way it is planned, designed, constructed, maintained and operated.

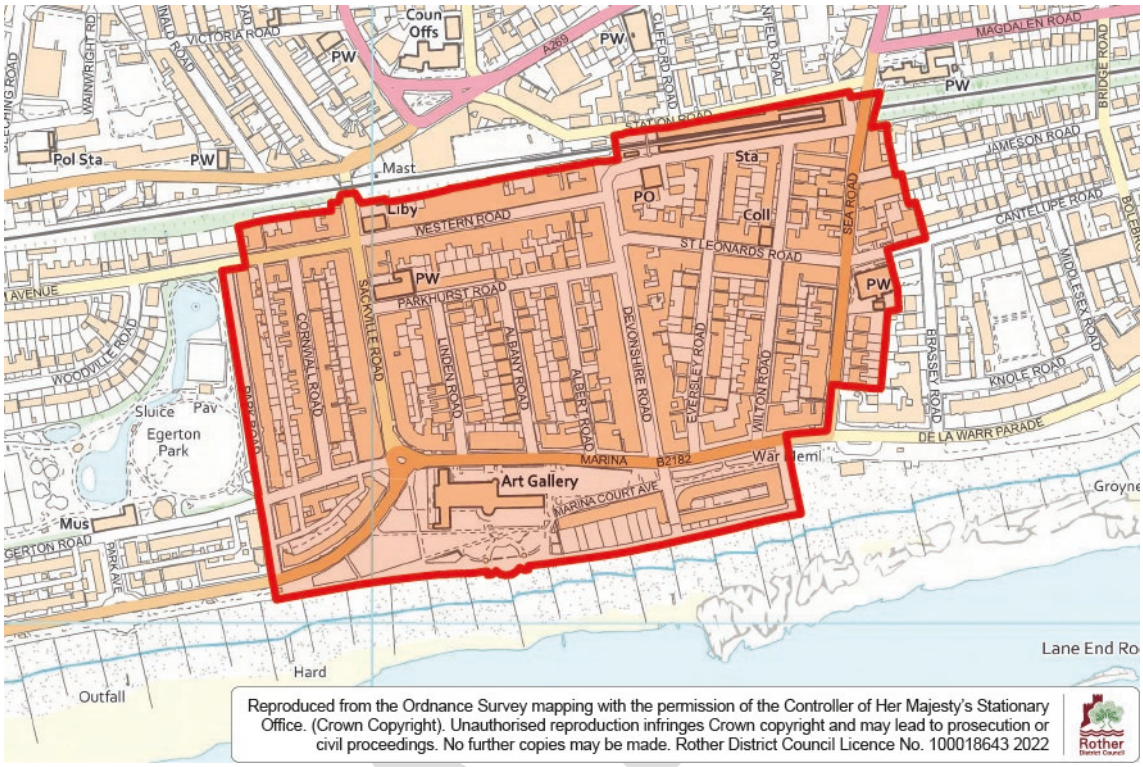
Bexhill Town Centre Conservation Area

13. Bexhill-on-Sea Town Centre provides a fine example of an unusually complete Edwardian townscape built principally between 1880 and 1905 under the patronage of the 7th and 8th Earls De La Warr, who pursued a vision of creating a fashionable seaside resort.

14. The flat land to the south west of the Old Town of Bexhill, between the railway line and the beach, was made suitable for development by the construction of the sea wall, and the town was planned with a grid pattern of streets which mainly lie either at right angles or parallel to the shore. The wide Devonshire Road was laid out as the principal shopping street, running north-south, as does Sackville Road, while Western Road and St Leonard's Road run east-west. These formed the main commercial streets, and continue to do so to this day, while in between run north-south subsidiary residential streets. This well-integrated mix of uses is a key part of the character of the town.

15. Bexhill town centre was designated a Conservation Area in 1992, in recognition of its architectural and historic significance, and reviewed in 2003. The Conservation Area Appraisal, adopted on 24 February 2004, highlights the unique plan form of the town, its architectural styles, detailing and ornamentation and its building materials, as well the role played by open spaces, trees and vistas, including the Seafront and Devonshire Square.

Figure 1: Bexhill Town Centre Conservation Area



16. The character of the Conservation Area is greatly informed by the short period of construction of most of the buildings in the town centre resulting in a particularly homogenous architecture, with a variety of examples of competent late Victorian/Edwardian architecture including lavish ornamentation and elaborate detailing. These buildings are typically three or four storeys high along the commercial streets, with residential upper storeys and ground floor shop frontages of various degrees of historic value and condition of repair, while in the wholly residential streets a more domestic scale storeys prevails.

17. The rich heritage of this architecture, imposing in scale and ornate in detailing, plays an important role in defining the local character and street scene. Numerous features contribute to the elevational appearance of the late Victorian/Edwardian buildings within the conservation area, including top floor open pediments or ornate Dutch gables, projecting bays at first and second floor, fenestration patterns and sash windows, balconies with wrought iron balustrading, and the use of decorative pilasters, corbels, string courses, quoins and keystones. Collectively these features impart much of the historical character and distinctive appearance of the Conservation Area. The cohesive appearance of the Conservation Area is promoted through semi-detached visual pairs and full terraces that adopt a clear symmetry and rhythm within the street scenes across the Conservation Area and conveys a sense of architectural integrity and strength.

Figure 2: Photo of Devonshire Road, 1900

Figure 3: Photo of Park Road, 1895

Why is the Conservation Area important?

18. Conservation Area designation allows consideration to be given to preserving or enhancing the character and appearance of the conservation area in any development that requires planning permission.

19. Nationally, properties within conservation areas are typically worth 23% more than a comparable property elsewhere[6].

20. If well maintained and presented, conservation areas provide a social and cultural appeal to the area, subsequently boosting economic performance, quality of life and desirability.[7]

21. Maintaining and strengthening the character and appearance of the Edwardian core of the Conservation Area has underpinned many of the Council's successful economic regeneration initiatives, including:

- A Heritage Economic Regeneration Scheme, supported by Historic England, which awarded shopfront repair and replacement grants to 28 shops in Bexhill town centre, bringing a number of vacant shops back into use at the time.
- The securing of European funding through the Interreg programme to install heritage style lampposts in Sackville Road.
- The Next Wave West Parade Scheme; a major investment in the public realm[8] by RDC, supported by the then Commission for Architecture & the Built Environment, which aimed to support the core section of Bexhill's seafront to become a high-quality destination for both residents and visitors, with consequential regeneration benefits for the whole town.
- Securing East Sussex County Council highways and public realm improvement works to Devonshire Square, Devonshire Road, and Marina, with the aims of enhancing economic vitality and appearance in the town centre and improving the pedestrian experience.

[6] https://historicengland.org.uk/images-books/publications/traditional-windows-care-repair-upgrading/heag039-traditional-windows-revfeb17/

[7] https://historicengland.org.uk/images-books/publications/heritage-works/

[8] https://www.rother.gov.uk/wp-content/uploads/2020/01/Consultation_Draft_RDC_Public_Realm_Strategic_Framework_3.pdf

22. These initiatives have sought to increase footfall and spending power in the town centre to encourage private sector investment to build on the successful improvements to the visual appearance and quality of this area initiated by the public sector investment projects and strengthen the Conservation Area's special architectural and historic character.

23. However, despite considerable investment, the conservation area does not realise its full aesthetic potential. One reason for this is that the architectural consistency and strength of form is diluted by unsympathetic windows - to the detriment of the area.

24. To build upon the successful schemes already undertaken, this document advises homeowners, landlords and built environment professionals of appropriate approaches to window restoration, and where necessary replacement, that will enhance the character and appearance of the conservation area.

Why Windows Matter

25. Historic England is an executive non-departmental public body sponsored by the Department for Digital, Culture, Media and Sport (DCMS). It carries out a range of functions that help people care for, enjoy and celebrate England's historic environment, including carrying out a range of specialist research and publishing a wide range of advice, including technical guidance, advice on caring for heritage, and heritage in the planning system.

26. Historic England has carried out a large number of research programmes, focussing on understanding and improving the energy performance of historic buildings and the effects of measures to increase energy efficiency. This research has underpinned the range of guidance and advice that they have produced, particularly with regard to windows in the historic environment.

27. Historic England provides the following advice on its website:

> "*Traditional windows make an important contribution to the visual character and heritage significance of historic buildings and areas. They are integral to the design of older buildings and can be important artefacts*

in their own right, made with great skill and ingenuity from high quality materials not generally available today. When contemplating improvements to save energy and reduce fuel bills, owners and residents of historic buildings often think first about replacement windows.

Many traditional windows have been lost because old windows are thought to be burdensome to maintain and not energy efficient. But research carried out by Historic England has shown that they can be made to meet current thermal performance requirements economically and with minimal harm to significance. Furthermore, they are durable, functional and repairable and if properly maintained will last longer than many types of replacement. Therefore, this 'repair not replace' approach makes good social, economic and environmental sense."

Heritage & Sustainability

28. Generally speaking, improving the energy efficiency of unlisted buildings in conservation areas means reducing heat losses wherever possible without damaging the special character and appearance of the conservation area.

29. Historic England's overarching guidance Energy Efficiency and Historic Buildings: How to Improve Energy Efficiency[9] sets out their holistic 'whole building approach' which considers:

- Context;
- Construction;
- Condition;
- Historic significance;
- An understanding of all the factors that affect energy use; and
- How to devise an energy efficiency strategy for any building.

[9] https://historicengland.org.uk/images-books/publications/eehb-how-to-improve-energy-efficiency/heag094-how-to-improve-energy-efficiency/

30. The ‘whole building’ approach recognises that the thermal efficiency of historic buildings can be greatly improved without replacing windows that contribute to their significance. Rather than focusing entirely on windows, it is better to consider energy conservation measures that address the thermal efficiency of the whole of the building. In this way, the aim should be to strike an appropriate balance between energy conservation and building conservation. Adopting a ‘whole building’ approach can help in understanding where energy goes and identifying less harmful options to achieve energy savings.

31. With specific regard to works to windows, Historic England's website contains extensive guidance and research on this subject.

- Traditional Windows: their care, repair and upgrading[10]
- Modifying Historic Windows as Part of Retrofitting Energy-Saving Measures[11]

32. While not solely a Conservation Area issue, environmental concerns regarding PVCu windows are relevant given the Council’s Environment Strategy and because applicants often seek to argue the energy efficiency benefits of installing double-glazed PVCu rather than retaining timber windows. The council acknowledge that double glazing is beneficial, but this can be achieved, often more cheaply, by retrofitting double-glazing into existing timber frames, as discussed under scenario 1 below

33. In carbon emission terms, the impact of the material used is also important. Commentary regarding the environmental impact of PVCu windows is provided, in Appendix 1.

PVCu windows in Bexhill Town Centre Conservation Area

Visual Appearance

34. Prior to designation as a conservation area, many properties had inappropriate PVCu casement windows installed, which has caused significant detriment to the character and appearance of the conservation area.

[10] https://historicengland.org.uk/images-books/publications/traditional-windows-care-repair-upgrading/
[11] https://historicengland.org.uk/whats-new/features/climate-change/modifying-historic-windows-as-part-of-retrofitting-energy-saving-measures/

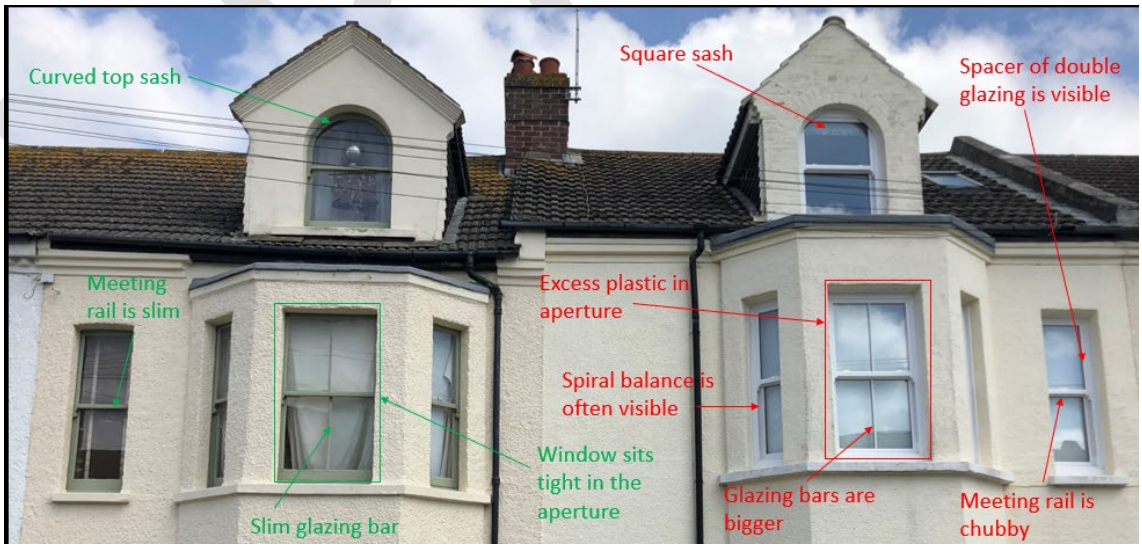
35. While the range and design of plastic windows has increased over the years, to include sliding sash PVCu ones as well as the older 'tilt and turn' casement style units, nevertheless these PVCu sash windows still have clear failings in terms of appearance.

- The bulbous and chunky characteristics of the new PVCu windows harm appearance.
- Significant amounts of glazed area are lost, this distorts proportions and overall appearance.
- They usually adopt a spiral balance opening mechanism which can be seen and do not always faithfully reproduce the appearance of original windows.
- The finish of PVCu windows is overly smooth, attracts dirt and often yellows over time.
- Finer details such as curved sashes and sash horns are often omitted

36. Appendix 2 provides an annotated diagram setting out the key components of a timber sash window.

37. The annotated photo below shows the variation between timber windows on the left and PVCu sash windows on the right.

Figure 4: Annotated photo showing variation between timber and PVCu windows



38. The photo below shows three bay windows in PVCu and one bay in timber clearly showing the variation in proportionality.

Figure 5: Photo example of timber and PVCu variation in proportionality

Implementing National & Local Plan Policy in Bexhill Town Centre

39. In assessing applications for works to windows and doors in the Bexhill Town Centre Conservation Area, and with regard to discharging our duties under Section 72 of the Planning (Listed Buildings & Conservation Areas) Act 1990, and implementing national and local planning policy, the local planning authority would generally follow Historic England advice regarding looking to retain, repair and thermally upgrade existing historic windows, or where an original window is beyond repair, then replacing with timber double glazed windows that closely match the original, which are longer-lasting and less carbon-costly than PVCu equivalents. This approach is expanded for specific scenarios over the following pages.

40. In doing so, the local planning authority are supporting the Historic England strategy to:

- Maintain and repair sympathetically with appropriate materials and techniques (since this approach is usually more sustainable than replacement.)

- **Consider window improvements in the context of a 'whole building approach' to energy efficiency**. This approach considers all the factors affecting energy use, to allow for the best balance between saving energy, maintaining a healthy indoor environment and sustaining heritage significance.
- **Think about the whole-life carbon costs** of alterations, not just the potential saving in operational energy and carbon. Some alterations can cost more in energy and carbon than they save during their service life.
- **Recognise it is possible to make houses more energy efficient and sustainable without harming their heritage significance**. The amount of heat lost through windows may be a relatively small proportion of the total, depending on the number and size of the windows. Therefore, improvements beyond repair and draught sealing may not be cost-effective in either financial or carbon terms.

Scenarios

41. This section presents a series of scenarios to increase understanding of how planning applications would be considered in the generic situations described. Note that each individual planning application proposal will be unique in terms of its detailed proposals and the existing context and each application will be determined in accordance with the adopted Local Plan unless material considerations indicate otherwise.[12]

Scenario 1: Works affecting historic timber windows

42. The presence of traditional timber sliding sash windows within the Bexhill Town Centre Conservation Area makes a significant contribution to the character and appearance of the conservation area in terms of form, proportion, opening method, opening mechanism and overall appearance. Having regard to Section 72 of the Planning (Listed Buildings and Conservation Areas) Act, in all cases the council will seek to retain traditional historic timber windows.

[12] Section 38(6) of the Planning and Compulsory Purchase Act 2004

43. The quality of wood used to create original timber windows was excellent and has proven to be long lasting. Therefore, their replacement should be a last resort and will only be acceptable if repair and restoration is not possible. Repair is also most likely to be the cheapest option and provides an opportunity to meet modern requirements of energy efficiency and enhanced comfort. While not typically associated with traditional windows, these aspects can be achieved through retrofitting existing timber windows, as explained in the 'Retrofitting Existing Windows' section.

44. However, should an original window be in such a deteriorated condition as to require replacement, then a faithful, 'like for like', good quality timber reproduction is required in terms of proportion and dimension of framing members, appearance, opening method, opening mechanism and glazing bar pattern. Additional features such as modern glazing and draught proofing will be accepted if in accordance with the details outlined in the retrofitting section below.

Retrofitting Existing Windows

It is acknowledged that energy efficient windows do contribute to comfort levels for residents and will reduce energy consumption which will not only reduce living costs but also potentially assist in tackling climate change. The retrofitting of original windows with draft excluders or energy efficient glazing can usually enable residents to realise all of these advantages without window replacement or adversely affecting the historic environment.

There are a number of retrofitting and upgrading measures that can help address the issues around heat loss and energy efficiency.

Draught exclusion

Draught exclusion rubber strips and brush pile strips can be added to both the sash, the parting bead, and staff bead. According to Historic England, this relatively low cost retrofit can reduce draughts by up to 80%.[13]

[13] https://historicengland.org.uk/images-books/publications/traditional-windows-care-repair-upgrading/heag039-traditional-windows-revfeb17/

Secondary Glazing

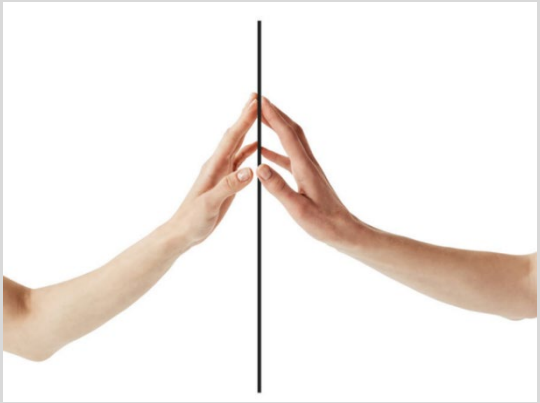
The use of secondary glazing will allow the appearance and originality of the windows to be retained. Secondary glazing, if well installed and to the correct specification, will provide thermal efficiency to the equivalent of a PVCu double glazed window.[14] This should be considered specifically where you have leaded light or stained glass windows.

Vacuum Glazing

This glazing is a form of double glazing but with only a 0.1mm gap between the 2 panes of glass, it can return efficiencies similar to 44mm Triple Glazing and is far superior in relation to double glazing. Some minor adaptation of the sash will be required, such as the rebate will need to

[14] https://historicengland.org.uk/images-books/publications/traditional-windows-care-repair-upgrading/heag039-traditional-windows-revfeb17/

increase in depth by approximately 4mm and the counterweights will need to be increased. Linseed oil putty can be used. This type of glass cannot be used on windows less than 200mm x 200mm or on stained glass or leaded light windows.



12mm ‘Slimlite’ Double Glazing

This type of double glazing can be retrofitted into existing sash windows. Some minor adaption of the sash will be required, such as the rebate will need to increase in depth by approximately 8mm. The additional weight of the glass and separating frame will mean a significant increase in the counterweight required.

Some models do not accept linseed oil putty and warranties are limited. This type of glass cannot be used on stained glass or leaded light windows.22mm and 28mm double glazed units, and 44mm triple glazed units cannot be used as they will not fit within the framing dimensions of a traditional sash window.

Scenario 2: Works affecting existing modern timber windows

45. Some buildings have good quality replacement windows installed, that successfully replicate the features and detailing (in the majority of cases sliding-sash) of original windows, but others have only imitated certain features, or the quality and overall appearance of the replacement is not satisfactory (introducing casement opening for example).

46. The quality of the existing modern window, in terms of appearance, will be a significant factor in the approach the council will take. A good quality reproduction may have preserved the character and appearance of the conservation area, but a poor reproduction may be detrimental.

<u>A good quality modern timber window</u>

47. A good quality reproduction is considered to be faithful to original windows in terms of proportionality, appearance, opening method and opening mechanism. Modern timber windows can be retrofitted in the same manner as a historic timber window (see previous page) as they make a valuable contribution to preserving and enhancing the character of the conservation area. In accordance with Section 72 of the Planning (Listed Buildings and Conservation Areas) Act, the council will seek to preserve these windows as this form of window is considered to be a faithful reproduction of the original fitments that contributes to preserving the character and appearance of the conservation area.

48. However, should a good quality timber window (in the majority of cases, this will be sliding sash) be in such a deteriorated condition as to require replacement, then a faithful, 'like for like', good quality timber reproduction is required in terms of proportion and dimension of framing members, appearance, opening method, opening mechanism and glazing bar pattern. Additional features such as modern glazing and draught proofing will be accepted if in accordance with the details outlined in the retrofitting section within scenario 1 above.

A poor quality modern timber window

49. A poor-quality timber window is considered to be a window that lacks suitable proportionality, appearance, opening method and opening mechanisms that cannot be simply rectified. For example, a casement window where the original would have been sliding-sash. In accordance with Section 72 of the Planning (Listed Buildings and Conservation Areas) Act, the council will seek to enhance the character and appearance of the conservation area, by allowing the installation of timber sliding sash windows where an inferior timber window was previously present.

50. A PVCu sliding sash window will be considered but the proposal must be consistent with other window materials upon the elevation both in the immediate and wider street scene and significant justification should be given as to why a PVCu window is being proposed as the desired proportionality cannot be achieved. Particular attention shall also be paid to the section sizing, siting and opening method of the PVCu replacement.

Scenario 3: Works affecting existing PVCu windows

51. The installation of casement and tilt and turn PVCu windows has caused significant detriment to the character and appearance of the conservation area. The poor proportionality, lack of reference to original design or opening method has caused significant harm.

52. This inappropriate fenestration has not only eroded the sense of place and quality of the area but has, according to a Historic England national survey, also devalues conservation areas in monetary terms.

Figure 6: Photo of inappropriate PVCu casement windows

53. In accordance with Section 72 of the Planning (Listed Buildings and Conservation Areas) Act, the council will seek to enhance the character and appearance of the conservation area. New tilt and turn or casement windows will not be supported as this particular form of window fails to preserve and harms the character and appearance of the conservation area. Timber or PVCu sliding sash windows of suitable appearance, proportionality and opening method will be supported as they will, in both cases, enhance the character and appearance when compared to the existing window.

Summary of Scenarios

54. To aid understanding, the following table summarises the scenarios discussed. Neither the table nor the scenarios are a decision-making guide but aim to aid understanding as explained in paragraph 38.

Scenario	Repair	Retrofit energy efficiency	Timber replacement	PVCu replacement
1 – original timber window	Yes. This is supported. It is often the cheapest option. Planning permission normally not required[15].	Yes. This is supported. Draught excluders, secondary glazing, vacuum glass and slimline double glazing can be retrofitted. Planning permission normally not required	Only as a last resort if the existing window is in such a deteriorated condition (the planning application would need to demonstrate this). Replacement timber must meet the original design. Normally requires planning permission.	No. The introduction of PVCu would harm the character and appearance of the conservation area.
2 – good quality modern timber window	Yes. This is supported. It is often the cheapest option. Planning permission normally not required.	Yes. This is supported. Draught excluders, secondary glazing, vacuum glass and slimline double glazing can be retrofitted. Planning permission not normally required	Only as a last resort if the existing window is in such a deteriorated condition (the planning application would need to demonstrate this). Replacement timber must meet the original design. Normally requires planning permission.	No. The introduction of PVCu would harm the character and appearance of the conservation area.

[15] It is recommended that a Lawful Development Certificate for a Proposed Development is granted to formally confirm whether planning permission is required - Application for a Lawful Development Certificate – Rother District Council

Scenario	Repair	Retrofit energy efficiency	Timber replacement	PVCu replacement
2 - poor quality modern timber window	While a replacement good quality timber window would be an enhancement, repair would preserve the conservation area. Planning permission normally not required.	Yes. This is supported. Draught excluders, secondary glazing, vacuum glass and slimline double glazing. Planning permission not normally required	Yes. Encouraged. A good quality modern timber window (a sliding-sash) would enhance the character and appearance of the conservation area. Normally requires planning permission.	A PVCu sliding sash window will be considered but significant justification as to why a PVCu window is appropriate will be required.
3 - PVCu	Repair often not possible.	Retrofitting often not possible.	Yes. Encouraged. A good quality modern timber window (a sliding-sash) would enhance the conservation area. Normally requires planning permission.	Yes. A replacement PVCu window would enhance the conservation area where it is a sliding sash style.

Further Sources of Information

Pre-application advice

55. We encourage applicants to use our pre-application advice service for comments on proposals before a formal application is submitted. More information is available at: Pre-application advice – Rother District Council[16]

Other advice

56. Historic England produce much useful advice available on their website via the following links:

- Energy Efficiency and Historic Buildings: Draught-proofing windows and doors[17]
- Energy Efficiency and Historic Buildings: Secondary glazing for windows[18]
- Traditional Windows: their care, repair and upgrading[19]

[16] https://www.rother.gov.uk/planning-and-building-control/pre-application-advice-and-fees/
[17] https://historicengland.org.uk/images-books/publications/eehb-draught-proofing-windows-doors/
[18] https://historicengland.org.uk/images-books/publications/eehb-secondary-glazing-windows/
[19] https://historicengland.org.uk/images-books/publications/traditional-windows-care-repair-upgrading/

- Heritage at Risk Conservation Areas[20]
- Modifying Historic Windows as Part of Retrofitting Energy-Saving Measures[21]
- Research into the Thermal Performance of Traditional Windows:Timber sash windows[22]
- Heritage at Risk Conservation Areas Booklet[23]

[20] https://historicengland.org.uk/images-books/publications/local-authority-guidance-conservation-area-management/caar-acc/

[21] https://historicengland.org.uk/whats-new/features/climate-change/modifying-historic-windows-as-part-of-retrofitting-energy-saving-measures/

[22] https://historicengland.org.uk/research/results/reports/109-2009

[23] https://historicengland.org.uk/images-books/publications/conservation_areas_at_risk/caar-booklet-acc/

Appendix 1 - Environmental impact of PVCu windows

1. PVCu replacement windows comes from a desire to improvement energy efficiency and environment impact. However, in this regard it is important to consider the wider environmental impact of PVCu in each of three phases; production, use (longevity), and disposal. The use of timber carries significant environmental benefits over that of PVCu.

Production

2. PVCu is created from oil, through a chemical and industrial manufacturing process utilising approximately 4% of the total petrochemical industry's resource[24].

3. Timber is naturally grown, the period of growth is a significant period of time, usually between 40-150 years depending on the species[25], during that period the tree sequesters (takes out of the atmosphere) carbon dioxide and provides shade, cooling and habitats promoting bio-diversity. Harvesting of timber does cause some carbon generation but is low and schemes such as FSC ensures that felled trees are replaced and woodlands responsibly managed. [26] [27]

Longevity

4. The Buildings Research Establishment (BRE) concluded that PVCu windows have a typical life span of no more than 35 years. PVCu windows are also seldomly repairable in the event of failure leading to wholesale replacement and in turn increasing levels of waste.

5. Conversely, the Whole Life Analysis of timber, modified timber and aluminium-clad timber windows: Service Life Planning (SLP), Whole Life Costing (WLC) and Life Cycle Assessment (LCA) conducted by the Institute for Building and Urban Design concluded that a standard new timber window would have a life expectancy of 65 years, modified timber windows a life expectancy of 68 – 80 years, and Aluminium clad timber windows a life of 71 – 83 years. [28]

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[24] https://asbp.org.uk/wp-content/uploads/2017/06/A-clear-choice-WWA_WWF-10.5.17.pdf

[25] https://www.forestryengland.uk/timber-uses-of-wood#:~:text=These%20trees%20take%20around%2040,they%20are%20ready%20to%20harvest.

[26] https://www.forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/

[27] https://uk.fsc.org/

[28] https://pure.hw.ac.uk/ws/portalfiles/portal/4378394/Final_report_SLP_WLC_and_LCA.pdf

6. It should also be considered that if original windows are still present, they are now approximately 120 years old. The widespread use of heartwood as opposed to sap wood from slow grown, mature trees in previous periods is why the original windows have such good longevity.[29]

Disposal

7. Both the WWF and the Alliance for Sustainable Building Products (ASBP) have published significant studies regarding the environmental impacts of PVCu and the benefits of the use of timber. According to WWF, 83% of UPVC waste goes to landfill, and although can be recycled, that process is energy intensive and occurs in approximately 3% of disposed PVCu windows. [30] [31]

8. The recycling of timber is more widespread and leads to the production of manmade timber products such as OSB and MDF. However, timber is a natural material and will naturally decompose if sent to landfill which only occurs to 1% of the total timber disposed of in the UK.[32]

[29] https://historicengland.org.uk/advice/technical-advice/buildings/practical-building-conservation/

[30] https://www.wwf.org.uk/sites/default/files/2017-06/windows_0305.pdf

[31] https://asbp.org.uk/briefing-paper/whats-in-my-upvc-window

[32] https://www.trada.co.uk/media/12780/wis-2_3-59-recovering-and-minimising-waste-wood-150520.pdf

Appendix 2: Typical sash window construction