2022 QUINQUENNIAL INSPECTION SURVEY REPORT

Under the Inspection of Churches Measure 1955
as amended by Ecclesiastical Jurisdiction and The Care of Churches Measure 2018

PRESTON-UNDER-SCAR: CHURCH OF ST MARGARET

Inspection conducted by:

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Job Ref: Q0008

Preston-Under-Scar	**Church of St Margaret**
Diocese:	Anglican Diocese of Leeds
Archdeaconry:	Richmond and Craven
Contact:	Hilary Grisewood
Date of Inspection:	28th June 2022
Date of Last Inspection:	10th April 2017
Limitations:	The inspection was carried out from ground level using binoculars both inside and out where necessary. Ladders were not available. Compass bearings throughout this report refer to ecclesiastical orientation. Window reference numbers, where given, refer to the CVMA (Corpus Vitrearum Medii Aevi) system.
Disclaimer:	Woodwork or other parts of the structure which are covered, unexposed or inaccessible have not been inspected and therefore it is not possible to report that any such part of the building is free of defect.

Contents

1.0 Work Since Last Report

Ventilation holes to both chimneys.
Painted sill painted on south side.
Ventilation in Vestry door.
New noticeboard.

2.0 General Condition

The church is Grade II Listed, originally built in 1862 as an aisle-less chapel within the parish of Holy Trinity, Wensley. Generally, rubble construction with ashlar dressings and a Welsh slate roof, with plain glazing throughout. The

The church is clearly very well cared for by the community, and work has been consistently carried out through the quinquennium to keep the church in good order.

There should be no rush to re-plaster and redecorate the west wall it is more important to ensure that it dries out. If the damp does not resolve, it may be worth confirming that the copings have had a lead them proof course installed beneath them.

The internal timber work of the windows requires redecoration, and to the north side the external timber work requires redecoration too. All remaining cast-iron gutters should be redecorated to ensure that they are not lost through rusting.

The Vestry gutter and downpipe should be investigated to ensure that they discharge into a drain, and not directly against the Vestry wall. If water does discharge against the wall, it is likely that it would compound the damp problem within the Vestry. Water should also be redirected from the outhouses as it looks like it may be washing out the joints below the upper outhouse door.

The inspection below outlines the condition of the building and categorises works as follows:

Urgent, requiring immediate attention	1
Requires attention within 12 months	2
Requires attention within the next 12 - 24 months	3
Requires attention within the quinquennial period	4
A desirable improvement with no timescale	5
To be kept under observation over the Quinquennium	O

Indicative Price

3.0 Nave

Nave is plastered and painted, with a timber boarded floor and carpet runners.

3.1 The roof consists of slender scissor trusses with no bottom cord, intermediate purlins, and plastered between. There is a little discolouration at each of the gable ends. It is assumed that this is the result of moisture coming from the walls where there have been problems in the past. Once the walls have dried the area can be redecorated with a breathable paint. There are no other signs of damp within the roof structure.

4 £1,000

3.2 The west wall has had the plaster removed at high-level following heavy damp ingress. Work has been carried out to improve ventilation to the chimney and the PCC believe that the damp is now slowly drying out. There should be no hurry to re-plaster here, and care should be taken to ensure that the wall is fully dry before it is re-plastered. When this plastering is carried out it should be done in a very soft lime mortar, preferably a hot or putty lime mix. The walls, once dry, should be lime washed to finish.

4 £3,500

3.3	The timber ventilator is heavily damaged at the bottom and is fractured to the top. It also appears that the stone which the ventilator sits on has a fracture running through it. When repairs to the ventilator are carried out, the stone fracture should be checked and repaired if necessary. The timber still looks damp and it may be that it is still continuing to dry out. Again, there is no hurry to carry out repairs before all items have dried out fully.		4	£2,000
3.4	There is a little damp on the north wall at high level. This may have been caused by water run-off from the Vestry roof overwhelming the gutter end. This should be kept under observation and redecorated with the rest of the church once fully dry.		4	£500
3.5	The east gable end has missing sections of plaster at high-level which is suspected to have been from previous damp. This has since been repaired and looks to be holding up well. It would, however, be desirable to fill in the depressions left where plaster has failed.		5	£500
3.6	Around the church there are areas of damaged plaster, particularly on the west wall adjacent to the Vestry, and to the windows elsewhere. This is perhaps to be expected in a building that is built into the hillside. It is also evident that some of the previous plastering has been carried out using a gypsum plaster, which is particularly notable next to the Vestry. Fundamentally, gypsum plaster will not help resolve the damp issues. All of this should be carefully removed and replaced in a lime-based plaster, and lime washed to finish once dry.		4	£2,500
3.7	The timber floor is relatively modern and seems to be sound where tested. Carpet runners are fixed down, and all seem relatively firm to the floor. There is potential for them to become a trip hazard, but at the time of inspection, this was not evident.			

3.8 Pews are very simple benches which have been modified following the modification of the floors. This has created a trip hazard when entering the pews. This is currently marked with hazard tape, but it would be a desirable improvement to consider other options for this.

5 £1,000

3.9 Fixtures & Fittings

The church has a small organ at the back, which is well cared for and regularly utilised.

3.10 The pulpit, reader's chair, and priest's chair are all very simple. They don't appear to be of a set, but they nevertheless work very well in this simple setting.

3.11 The northern and southern windows in the Nave have all been covered with Perspex secondary glazing. This is secured in place with a timber frame. This type of secondary glazing, although reasonably effective, does cause condensation to build up within the void. There is evidence that some of the sill timbers are starting to suffer as a result of the moisture ingress. The void should be vented at the bottom, and access should be available to clear debris from the cells of the windows. The internal timber work would benefit from being redecorated, but it is understood that the external frame has been decorated during the quinquennium.

2 £2,000

3.12 Chancel

The Chancel is a very simple later addition to the church. The ceiling is of a similar construction to the main body of the church, and the eastern wall is dominated by a painted mural of Christ on the cross. There is a simple altar table and other pieces of furniture on a timber floor overlaid with loose carpet. This is all accessed through a simple arch.

3.13 The ceiling finish is failing in areas, all of which need to be brushed back to remove all loose paint, and be redecorated. Ventilation is extensive and it may be that driven rain is entering through here and causing the paint to suffer. It would be prudent to consider some form of protection to the ventilation to maintain air flow and limit water ingress.

3 £1,000

3.14 The mural is suffering slightly in places. This may simply be historic damage, but it would be wise to appoint a paint conservator to inspect the mural. This would be to establish the stability of the existing paint and any areas needing repair.

4 £2,000

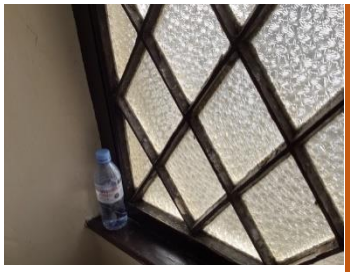
3.15 The remainder of the walls are in reasonable condition, except for at low-level both in the north-west corner and on the lower section of the south Chancel. In both areas there are small amounts of plaster loss and mould growth, which suggests water ingress. The areas should be brushed off and redecorated with lime wash.

2 £500

Floors, where tested, appeared sound. As noted previously, the carpet runners are placed on the floor but not secured down. This could potentially present a trip hazard, but they seem secure for now.

3.16 Altar furniture, albeit mismatched, is in good condition.

3.17 The window would benefit from some attention; it is in need of redecoration and some of the putty is missing in a couple of the quarries.



2 £750

3.18 Vestry

The small Vestry at the back of the church is very simple. Plastered and painted with a quarry tiled floor. There is evidence of damp, although it does appear to be drier than it perhaps has been in the past. This is no doubt due to the ventilation holes which have been added. The loose plaster and paint should be brushed off with a very stiff wire brush, and the area observed over the quinquennium to see if things improve. The plaster appears to be quite hard, which suggests that it might not be appropriate for the area, but if it dries out all may still be well.

O

3.19 Heating

Heating is by banks of three infrared heaters. These are understood to be reasonably effective. The church has been advised to look into the Eco Church program, as they are already on a renewable tariff for electricity, without gas, so using a sustainable form of heating. All of these may allow the church to fit many of the criteria already to be considered zero carbon by the Church of England.

3.20 Lower Outhouse

Mainly used for storage, and of brick construction with a stone lining, and timber floor over. There is a blocked-up doorway at the end. This all appears in reasonable condition but was fairly inaccessible due to the volume of stored stuffs within the space at the time of inspection. There is some salting evident on the timbers. This implies that there is damp in the area, which should be kept under observation during the quinquennium.

O

3.21 Upper Storage Outhouse

Stone lined room with a timber roof. Works have been carried out to the roof to replace some of the rafter ends, and the roof is felted. All appears in fair condition and is again used for storage.

3.22 The slot chamber to the north of the church is covered by large stone slabs and may have housed some of the former heating system. It also houses the remains of the now covered northern window. It is tempting to suggest that this slot is reopened to allow the northern window to be fully exposed. However, the situation at present seems to be stable and the slot appears to remain dry with little evidence of damp ingress at this point. As such, maintaining the status quo would remain acceptable.

5 £5,000

4.0 Exterior

The main building has a Welsh slate roof, with stone ridge and stone copings. There are a few slipped and chipped slates with a few tingled repairs.

4.1 There are several slipped slates on the under course which are now sitting in the gutter on the north side. These should be removed from the gutter and refixed.

2 £500

4.2 All other slipped slates to the roof slope should be repaired with tingle clips.

2 £500

4.3 Outhouse Roof

The outhouse roof is Yorkshire stone slate with a clay ridge. The junction with the Nave is leaded. There is a single cracked slate on the west side and a little bit of moss growth. Aside from this, all appears well for now.

4.4 Chancel Roof

The Chancel roof is stone slate with a stone up-stand, copings, and cross. There is also a stone ridge with a large ventilator. It seems possible, given the size of the slots, that water may be entering this ventilator and causing some of the internal paint peeling to the Chancel roof. It would be sensible to explore fitting a cowl to this to prevent water ingress.

2 £500

4.5 South Elevation

The southern elevation of the Nave, like the north, is Welsh slate with a stone ridge and two large chimneys. There is a gable upstand with copings. There is very little upstand at each end which can cause water ingress. The solution to this is a lead damp proof course installed beneath the copings. It is not clear if this work has already been carried out, if not and the damp is not resolved it should be installed.

4 £3,500

4.6 The vegetation growing out of the verge on the Chancel south elevation should be removed, so that the flaunching can be repaired.

2 £750

4.7 There is a little bit of unevenness to this roof and there is a single under cloak slate which has slipped into the gutter. These should be repaired.

2 £500

4.8 Rainwater Goods

The guttering on the south side is plastic, and is probably undersized for the level of rainfall which the area receives. A desirable improvement would be to reinstate the rainwater goods, including the rise and fall gutter brackets, in cast-iron. All the rainwater goods to this elevation should be redecorated.

5 £2,000

4.9 Cast-iron guttering and downpipes remain in some locations, and they will require redecoration within the next couple of years.

3 £1,000

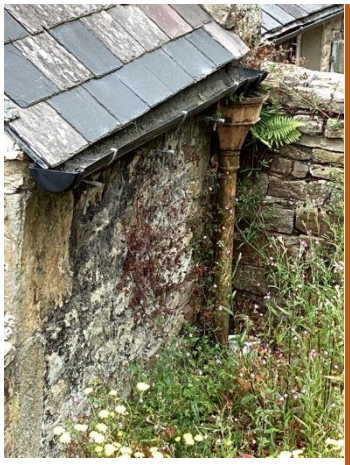
4.10 All the rise and fall brackets to the north and east and elevations require derusting and redecoration, with the exception of those to the Vestry.

2 £500

4.11 The rainwater disposal arrangements to the outhouse should be improved. Water discharging here will enter open joints and since the joists for the floor are placed at this point, this might develop into an issue if left unresolved. There was some salting noted around these joints, and any further dampness could cause problems.

3 £1,000

4.12 The drainage from the Vestry should be investigated. The existing cast-iron downpipe requires repair, but the system needs to be inspected for leaks. If it is leaking, it has the potential to increase the dampness in the Vestry, which should be prevented where possible.



2 £1,000

4.13 Bellcote

The bellcote is of significant concern. There is a fresh fracture running through the upright to the north side, and the mechanism is extremely rusty. This begs the question as to how well the mechanism is still secured into the bell structure. The bell should not be rung until a stonemason has been able to assess the stability of the stonework and potentially repair the bellcote. Prior to resuming ringing, the bell mechanism required derusting and redecoration.

1 £4,000

4.14 When viewed through binoculars, the fracture appeared quite fresh, and it has very likely been caused by the rusting bell mechanism splitting the stone part. The stability of the entire bellcote should be assessed.

2 Inc above

4.15 The cap to the air pipe preventing water ingress should be replaced.

1 £500

4.16 Walling

The stonework and pointing is generally in fair condition. There are some isolated areas of open jointing, but the walling is generally quite tight.

4.17 Both the Vestry and northern window would benefit from redecoration, and the northern window from repair. When repairs are undertaken to the northern window, attention is required to improve the flashing detail to the area. It is currently flashed with a mixture of flash band and lead flash band, which while flexible has a very short life span. Consideration might be given to reinstating the full northern window to resolve this detail more fully.

2 £3,000

4.18 The hatch to the slot to the north of the building should be improved since this is currently just a metal plate. Although it appears to be providing both ventilation and rain cover, it does need to be formalised. If the full northern window is reinstated, as above, then this would not be required.

2 £500

4.19 Steel strap over the northern window should be redecorated.

3 £500

4.20 The chimney to the east of the Vestry requires capping off properly, and the ventilator requires repair.

2 £750

4.21 The stonework to the eastern elevation is generally in fair condition. Pointing is reasonably tight and while there is a small amount of hard mortar pointing, the stone is holding up well at present.

4.22 Both outhouse doors would benefit from redecoration.

3 £500

The front elevation is generally in good order. There are areas of open jointing, but nothing which requires immediate attention currently. The windows, which have been redecorated, are in good order.

4.23 The front doors, particularly the ironmongery, would benefit from redecoration.

3 £500

4.24 The noticeboard would benefit from redecoration.

2 £300

4.25 Of what could be seen of the west wall, all appeared in fair condition. The pointing seems to be tight, and the stonework appears to be holding up well.

4.26 External Environment

There is very little land associated with the church. The church fronts straight onto the pavement, which faces the main street, and at the back there is access to the allotments beyond. This rear access also appears to be shared with the neighbours.

4.27 Although pretty, the vegetation along the front wall is likely to hold moisture against the building. It should be removed to help resolve the issues of damp within the church.

2 £500

4.28 Access steps would benefit from the installation of guarding and a handrail.

3 £1,000

4.29 Access to the rear of the church is very uneven and overgrown. While this area may not be church property, if it is, it should be cleared, and access improved.

2 £500

4.30	Vegetation should be cleared from the retaining walls, and they should be assessed by a structural engineer to ensure that they are safe. There is a significant bulge in the northern wall, which warrants further assessment. If this is not the church's responsibility, the owner should be established and approached to undertake the works to ensure that the wall is safe.		2	£2,000

GENERAL GUIDANCE NOTES

A Electrical installation. Any electrical installation should be tested at least every quinquennium by a registered (ECA, NAPIT, NICEIC or other) electrician. Any repairs or maintenance to the system (excluding additions) must be certified for industrial or commercial work and accredited by UKAS. Such works are scheduled under List 'A' (Faculty Jurisdiction (Amendment) Rules 2019), for which consultation is not required. A resistance and earth continuity test should be obtained on all circuits. The equipment should display a note of the date of the inspection and when the next inspection is due. The engineer's test report should be kept with the Church Log Book. This present report is based upon a visual inspection of the main switchboard and of certain sections of the wiring selected at random, without the use of instruments.

B Lightning conductor. Any lightning conductor should be tested every quinquennium in accordance with the current British Standard by a competent engineer approved by the Church Insurers. The record of the test results and conditions should be kept with the Church Log Book. Any work required must be undertaken by an engineer approved by the Church Insurers. Such works are scheduled under List 'A' (Faculty Jurisdiction (Amendment) Rules 2019), for which consultation is not required.

C Heating equipment. A qualified engineer should carry out a proper examination and test of the heating apparatus each summer before the heating season begins. Any work required to a gas fitting must be carried out by a person registered under OFTEC or on the Gas Safe Register. Such works are scheduled under List 'A' (Faculty Jurisdiction (Amendment) Rules 2019), for which consultation is not required.

D Fire extinguishers. A minimum of two water type fire extinguishers (sited adjacent to each exit) should be provided plus additional special extinguishers for the organ and boiler house, as detailed below. Large Churches will require more extinguishers. As a rule of thumb, one water extinguisher should be provided for every 250 square metres of floor area.

Summary:

Location		**Type of Extinguisher**
General Area		Water
Organ		CO_2
Boiler House:	Solid fuel boiler	Water
	Gas fired boiler	Dry Powder
	Oil fired boiler	Foam (or dry powder if electricity supply to boiler room cannot easily be isolated).

A competent engineer should inspect all extinguishers annually to ensure that they are in good working order. Further advice can be obtained from the Fire Prevention Officer of the Local Fire Brigade and from your Church Insurers. The introduction, removal or disposal of fire extinguishers are scheduled under List 'A' (Faculty Jurisdiction (Amendment) Rules 2019), for which consultation is not required.

E Asbestos. Regulation of the Control of Asbestos at Work Regulations 2002 became law in 2004. This regulation creates a legal duty to manage asbestos in non-domestic premises. Parishes therefore need to find out whether any building in their care contain asbestos. If they do, an assessment of its condition and the risk to users must be made and a plan to manage that risk must be drawn up. The publication 'Managing asbestos: your new legal duties' can be downloaded from and should help in drawing up the management plan. A copy of the completed plan should be kept into the Log Book.

F Insurance. The PCC is reminded that insurance cover should be index-linked, so that adequate cover is maintained against inflation of building costs. Contact should be made with the insurance company to ensure that insurance cover is adequate.

G Buried elements. Woodwork or other parts of the building that are covered, unexposed or inaccessible have not been inspected. The Advisor cannot therefore report that any such part of the building is free from defect.

H Repair and maintenance. Although the Measure requires the Church to be inspected every five years, serious trouble may develop in between these surveys if minor defects are left unattended. The Care of Churches and Ecclesiastical Jurisdiction Measure 1991 requires that the Churchwardens make an annual inspection of the fabric and furnishings of the Church, including the safety of Churchyard headstones and other grave markers and prepare a report for consideration by the meeting of the PCC before the Annual Parochial Church Meeting. This must then be presented with any amendments made by the PCC, to the Annual Parochial Meeting. **The PCC is strongly advised to enter a contract with a local builder for the cleaning-out of gutters and downpipes twice a year.** Such works are scheduled under List 'A' (Faculty Jurisdiction (Amendment) Rules 2019), for which consultation is not required. Further guidance on the inspection and the statutory responsibilities are contained in '*How to Look After Your Church. The Churchwarden's Year'* gives general guidance on routine inspections and housekeeping and general guidance on cleaning is given in '*Handle with Prayer',* both published for the PCC by Church Housing Publishing.

J Nature of this Report. This is a summary report only, as required by the Inspection of Churches Measure. **It is not a specification for the execution of the work and must not be used as such.** Your Inspecting Architect is willing to help the PCC in implementing the recommendations and will, if so required, prepare a specification, seek tenders, and oversee the repairs.

K Legality of repairs. Some of the suggested works will be scheduled under List 'A' (Faculty Jurisdiction (Amendment) Rules 2019), for which consultation is not required. Others will be scheduled under List 'B' (Faculty Jurisdiction (Amendment) Rules 2019), for which consultation with the Archdeacon **is** required and a notice is given in writing that such works can be undertaken without Faculty. Works that can be undertaken under each List are shown under Schedule 1 of The Faculty Jurisdiction (Amendment) Rules 2019 *(Statutory Instrument 2019 No.1184: Ecclesiastical Law, England)*. Reference to these Rules should be made when considering any work to the Church, Churchyard and any building in the Churchyard or under the care of the PCC. Your Inspecting Architect is willing to advise the PCC on these lists and on which repairs will require Faculty, but the PCC is advised to consult the Archdeacon.

PREPARED AND ISSUED BY:

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Alexa Stephens
PEARCE BOTTOMLEY ARCHITECTS

Q0003

Quinquennial Questionnaire

DIOCESE: Leeds

PARISH: Aston with Wensley

PROPOSED:
SURVEY DATE: 28th June 2022

Please answer the relevant questions below and return it to **Pearce Bottomley Architects.**

1.0	**Churchyard**	
1.1	Bats. Are there any known bat colonies roosting in the building?	No
1.2	Burials. Is the graveyard still open for burials?	N/a
1.3	Trees. Do any trees have Tree Preservation Orders on them?	N/a
2.0	**Building Services**	
2.1	Accessibility. When was an accessibility audit last carried out?	2002 – update required
2.2	Electrics. When was the last Periodic Inspection Report?	2009 – update required.
2.3	Electrics. Have all the recommendations in the report been addressed?	No
2.4	Fire extinguishers. When were these last checked?	November 2021
2.5	Heating. Is there a maintenance agreement on all equipment?	N/a
2.6	Heating. When was the equipment last checked?	to be confirmed – ? 2020
2.7	Lightning conductor. When was this last checked?	to be confirmed.
2.8	Loop. Has an induction loop system been installed?	Yes – not used often.
3.0	**Administration**	
3.1	Insurance. Is it index-linked?	Yes.
3.2	Insurance. When was it last assessed?	to be confirmed
3.3	Log Book. When was it last updated?	21/10/2020
3.4	Reports. Are all maintenance/test reports kept in the Log Book?	Yes
3.5	Terrier / Inventory. When was it last signed off?	2012 – to be reviewed.
4.0	**Report Distribution**	
4.1	Electronic Format. Is this required? E-mail address:	
4.2	Paper Format. Name and address of the person to whom the completed report should be sent: No of copies:	

We have completed this questionnaire as fully as possible and to the best of our ability. We confirm that the proposed date & time and fees quoted for the survey are acceptable and convenient to us.

Signed: [signature] Date: 21/06/2022

Name: Gillian Forrest Position held: Churchwarden

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Pearce Bottomley Architects, Roman Ridge, Aberford, LS25 3AW T: 0113 281 2000 E: pba@pbarchitects.co.uk
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Sustainability Countdown to 2030

It will be for the PCC to set its priorities for sustainability improvements, and I would encourage you to use the Practical Path to Net Zero Carbon (PPNZC) appended to this Report to help set these. Some easy tasks are to ensure that the church is on renewable energy tariffs, and that the building is kept watertight. I would also recommend that you look at the Eco Church scheme – which is available as a printable questionnaire or as an app, https://ecochurch.arocha.org.uk/

A practical path to "net zero carbon" for our churches

These recommendations aim to help churches reduce their energy use and associated carbon emissions. They are based on the findings of our church energy audit programme and input from of a range of professionals in the field.

NOTE: Many of the suggestions below require faculty; please seek input early on. If the church interior is of historic, artistic, architectural or artistic interest, seek professional & DAC advice first, before making changes; stabilising the environment for these interiors is important to minimise cycles of treatment, with their inherent carbon cost.

A. Where do we start?

These are actions that nearly all churches can benefit from, even low occupancy churches used only on a Sunday. They are relatively easy, with relatively fast pay back. They are a good place for churches to start, when trying to move towards 'net zero'.

The building itself:

- A1. Maintain the roof and gutters, to prevent damp entering the building and warm air escaping.
- A2. Fix any broken window panes* and make sure opening windows shut tightly, to reduce heat loss.
- A3. Insulate around heating pipes to direct heat where you want it; this may allow other sources of heat to be reduced in this area.
- A4. If draughts from doors are problematic, draught-proof the gaps* or put up a door-curtain*.
- A5. Consider using rugs/floor-coverings (with breathable backings) and cushions on/around the pews/chairs.

Heating and lighting:

- A6. Switch to 100% renewable electricity, for example through Parish Buying's energy basket, and "green" gas.
- A7. Match heating settings better to usage, so you only run the heating when necessary*.
- A8. If you have water-filled radiators, try turning-off the heating 15 minutes before the service ends; for most churches this allows the heating system to continue to radiate residual warmth*.
- A9. If you have radiators, add a glycol based "anti-freeze" to your radiator system and review your frost setting.
- A10. Replace lightbulbs with LEDs, where simple replacement is possible.
- A11. Replace floodlights with new LED units.
- A12. If you have internet connection, install a HIVE- or NEST-type heating controller, to better control heating.
- A13. If your current appliances fail, then replace with A+++ appliances.

People and policies:

- A14. Complete the Energy Footprint Tool each year, as part of your Parish Return, & communicate the results.
- A15. Create an Energy Champion who monitors bills and encourages people to turn things off when not needed.
- A16. Write an energy efficiency procurement policy; commit to renewable electricity & A+++ rated appliances.
- A17. Consider moving PCC meetings elsewhere during cold months, rather than running the church heating.

Offset the rest:

- A18. For most low usage "Sunday" churches, once they have taken steps like these, their remaining non-renewable energy use will be very small. For the majority, all they need to do now to be "net zero" is offset the small remaining amount of energy through Climate Stewards or other reputable schemes.
- A19. Also, think about your church grounds. Is there an area where you could let vegetation or a tree grow?

B. Where do we go next?

These are actions with a reasonably fast pay back for a church with medium energy usage, used a few times a week. Perhaps half of churches should consider them.

Most actions cost more than the ones above, and/or require more time and thought. Some require some specialist advice and/or installers. They are often good next steps for those churches with the time and resources to move on further towards 'net zero'.

The building itself:

- B1. If you have an uninsulated, easy-to-access roof void, consult with your QI about insulating the loft*.
- B2. If you have problematic draughts from your door, and a door curtain wouldn't work, consult with your QI about installing a glazed door within your porch, or even a draught-lobby*.
- B3. Consider creating one or more smaller (separately heatable) spaces for smaller events.
- B4. Consider fabric wall-hangings or panels, with an air gap behind, as a barrier between people and cold walls.

Heating and lighting:

- B5. Learn how your building heats/cools and the link to comfort, by using data loggers (with good guidance).
- B6. Improve your heating zones and controls, so you only warm the areas you are using.
- B7. Install TRVs on radiators in meeting rooms & offices, to allow you to control them individually.

B8. Consider under-pew electric heaters and/or infra-red radiant panel heaters*, which keep people warm without trying to heat the whole church space. Radiant panels are especially good for specific spaces like chapels and transepts, which you might want warm when you don't need the whole church to be warm.

B9. If you have radiators, install a magnetic sediment "sludge" filter to extend the life of the system.

B10. Consider thermal and/or motion sensors to automatically light the church when visitors come in, for security lights, and for kitchens and WCs.

B11. Install an energy-saving device such as Savawatt on your fridge or other commercial appliances.

B12. Get your energy supplier to install a smart meter, to better measure the energy you use.

People and policies:

B13. Vary service times with the seasons, so in winter you meet early afternoon when the building is warmer.

C. Getting to zero

These are bigger, more complex, projects, which only busy churches with high energy use are likely to consider. They could reduce energy use significantly, but require substantial work (which itself has a carbon cost) and have a longer payback. **They all require professional advice, including input from your DAC.**

The building itself:

C1. Draught-proof windows*.

C2. If you have an open tower void, insulate or draught-proof the tower ceiling *.

C3. Double-glaze or secondary-glaze suitable windows in well-used areas such offices, vestries and halls*.

C4. Internally insulate walls in well-used areas such offices, vestries and halls*.

C5. If you have pew platforms, consider insulating under the wooden platform with breathable materials*.

C6. Reinstate ceilings, and insulate above*.

Heating and lighting:

C7. Install a new LED lighting system, including all harder-to-reach lights, new fittings & controls.

C8. Install solar PV, if you have an appropriate roof and use sufficient daytime electricity in the summer.

D. "Only if...."

These are actions you would do at specific times (such as when reordering is happening) or in very specific circumstances. **Nearly all require professional advice, including input from your DAC.**

The building itself:

D1. If you are reroofing anyway, then insulate the roof, if appropriate for your roof*.

D2. If you have an uninsulated wall with a cavity (typically build 1940 onwards), then insulate the cavity.

D3. If the building is regularly used & suitable, such as a church hall, consider appropriate external insulation or render, appropriate for the age and nature of the building*.

Heating and lighting:

D4. If there's no alternative that does not run on fossil-fuels, then replace an old gas boiler or an oil boiler with a new efficient gas boiler.

D5. If yours is a well-used church which you want to keep warm throughout the week, then consider an air or ground source heat pump. Ground source heat pumps are more expensive and invasive to install than air source heat pumps, but run more efficiently once installed, depending on ground conditions.

D6. If you are doing a major reordering or lifting the floor anyway, and yours is a very regularly used church, then consider under-floor heating. This can work well in combination with a heat pump (above).

Church grounds:

D7. If you have car parking that is sufficiently used, EV charging points for electric cars can work out cost neutral or earn a small amount of income for the church. Note, they will *increase* the church's own energy use, but will support the uptake of electric cars. They could be good in combination with solar PV panels.

E. By exception

These actions are often mentioned in this context, but are generally <u>not</u> recommended, because of the risk of harm to the fabric, energy used, and/or the cost.

- × Standard secondary glazing on the main, historic windows (*this can be inefficient, expensive, & cause damage*).
- × Install solar thermal panels to generate hot water (*hot water use is generally not high enough to justify it*).
- × Background space heating at all times unless needed for stabilisation of historic interiors (*high energy use*).

*** If interiors are of historic, architectural or artistic interest, seek professional & DAC advice first.**