Village & Community Halls
A Net Zero Design Guide

acre

stagg architects

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ACRE is the national body of England's largest rural grouping of community support charities. We enable our members to deliver initiatives that equip people with the knowledge, skills, and connections needed to improve their community. This includes the coordination of nationally funded projects, programmes and research.

Through a network of skilled advisers, ACRE coordinates a nationwide information and advice service for village halls. Advisers are based in every rural county of England and combine their specialist knowledge of running community buildings with local knowledge.

www.acre.org.uk

FOREWORD

We are excited at ACRE to share this Net Zero Design Guide with you. Improving energy efficiency of buildings, installing renewables, and going green is not something new to village and community halls, as the stories featured in this publication demonstrate. But technology has become more accessible and the climate emergency makes it more necessary than ever before to make progress towards Net Zero.

Village and community halls are a staple in rural communities, providing a warm and welcoming space for everyone to come together. However, the age, construction and diversity of buildings provides a challenge when considering the installation of energy saving measures.

Stagg Architects' offer to work with ACRE was timely. Ben and his team took on the challenge of producing this guide with a great deal of understanding and diplomacy, helping to develop relationships with sponsors and work with the committees of halls used in the case studies. We are very grateful to them!

To our sponsors – all market leaders in their fields – we hope you are pleased with the resulting guide and will continue to support village and community halls in their quest towards Net Zero. Thank you for your valuable contributions and insight.

Deborah Clarke
ACRE – Village Halls Manager

The guide is, in Ben's words, intended to be a simple, practical, and helpful resource for hall committees. It is certainly that, and the case studies bring the guide to life and demonstrate what can, and indeed has been achieved by small groups of volunteers across rural England.

We hope that you will be inspired by its contents and so take on the challenge of going green.

In the summer of 2023, I contacted ACRE and asked how communities were going about making village halls energy efficient. I was conscious of rising energy costs and the challenge of keeping halls warm, but also aware of the many potential benefits communities could realise by taking on their own low energy, retrofit projects.

It struck me that many village hall committees were likely, at some stage, to begin their own journey of retrofitting. Many would probably be starting from scratch with only basic knowledge, but gradually becoming experts over the course of the project. With so much to be learnt, how could this knowledge be shared to make the journey easier for others?

ACRE were very receptive to the idea of producing a design guide, and over the last six months we have worked closely, engaging with committees who have already improved their hall, talking to manufacturers about how their products can be used, and learning about community dynamics, the grind of funding and grant applications, and the perils of delivering construction projects over the last few, somewhat turbulent, years.

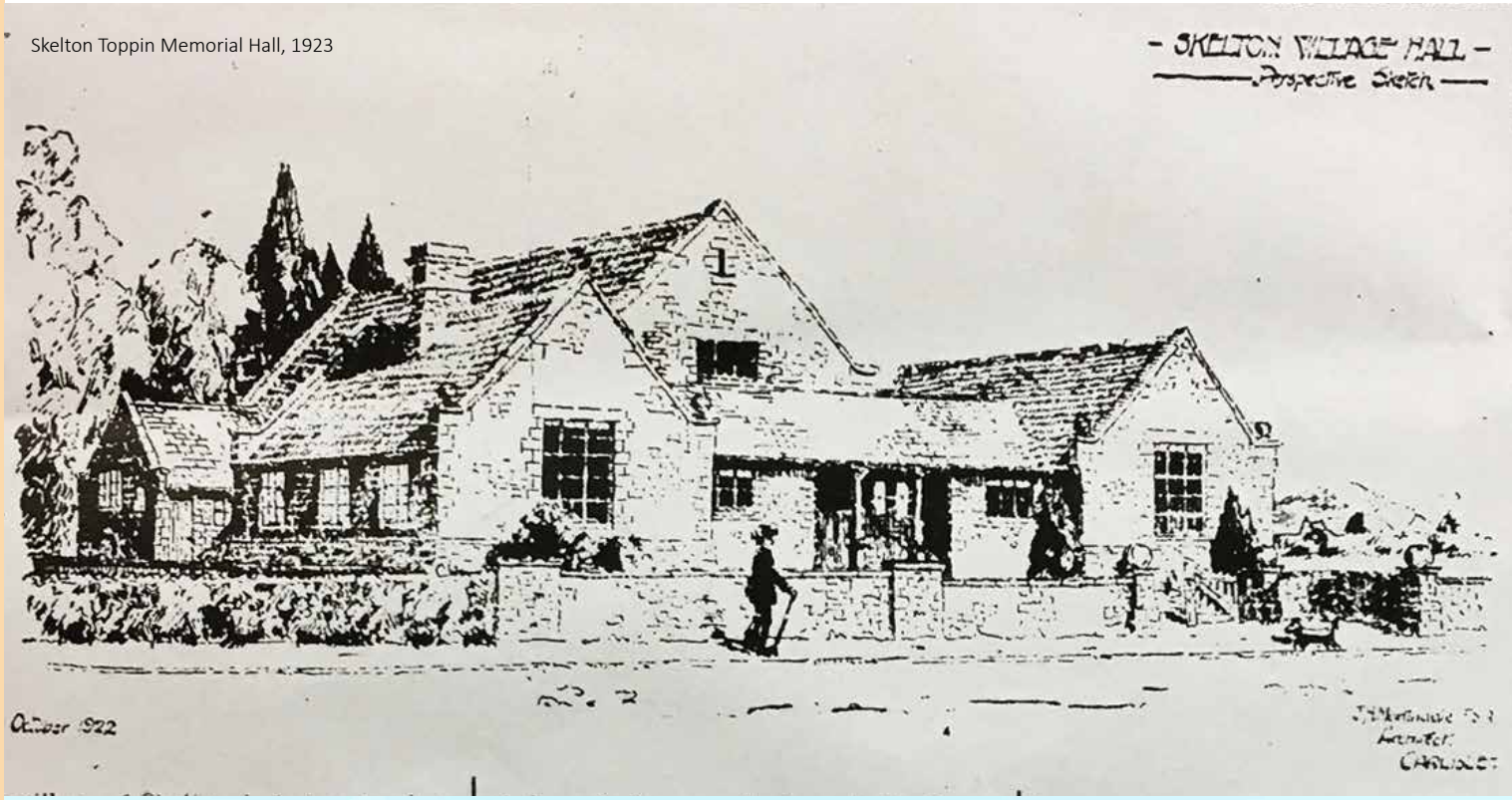
It has been a joy to travel around England, to Cumbria, Lancashire, Somerset, Dorset and Buckinghamshire, and meet so many motivated people who have taken it upon themselves to step into the world of design and construction, with forward-thinking and determination. It has also been reassuring to have the support of such a strong line-up of sponsors, who have all been incredibly helpful, enthusiastic, and in tune with our aims.

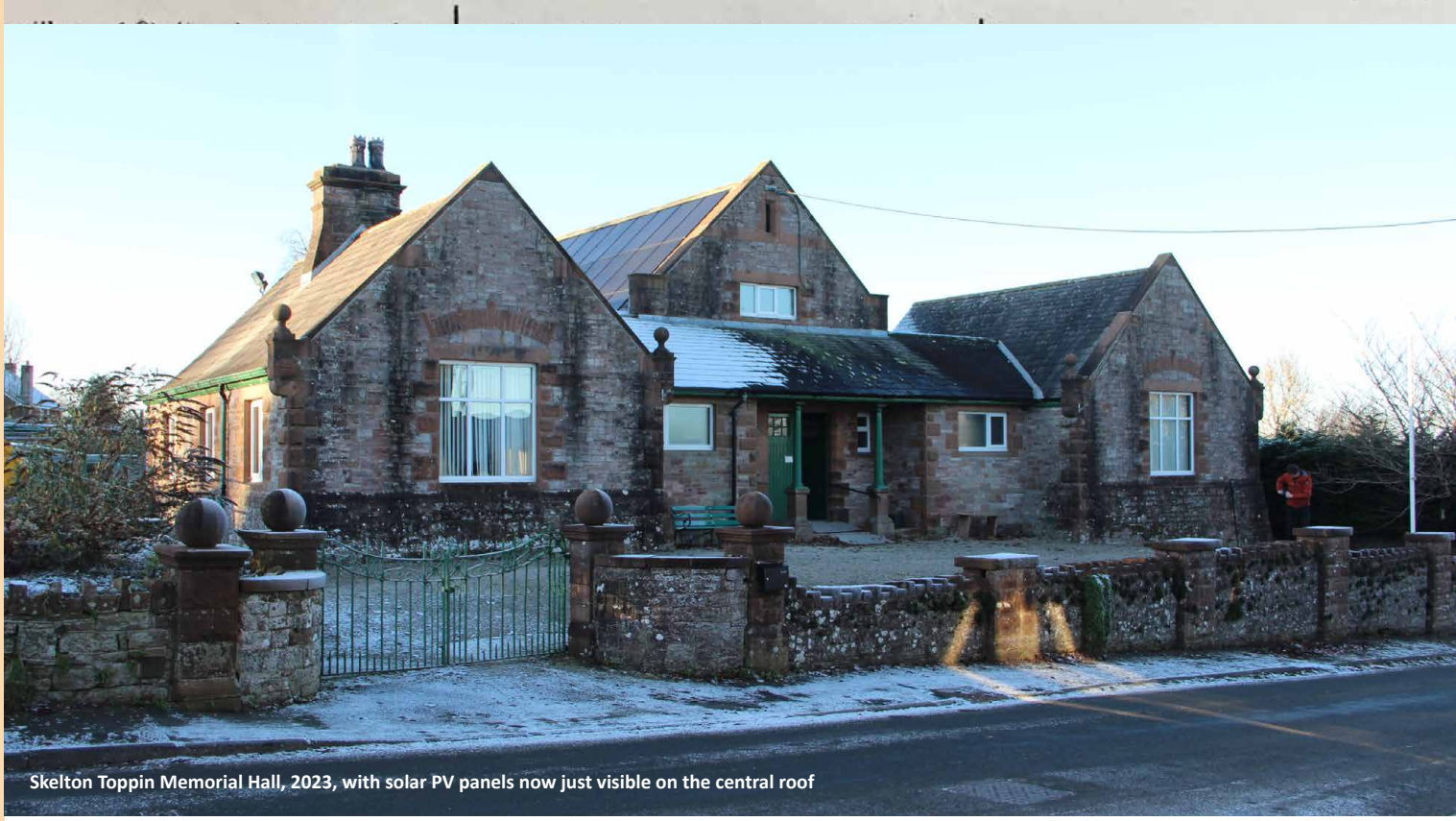
Ben Stagg
Director of Stagg Architects

Stagg Architects has been in practice since 2011, and we are keen to use the knowledge and skills we have accumulated to benefit charities and other social-purpose organisations. To further this aim we recently set up a new initiative called Belong, through which we aim to help bring about meaningful environmental and social change by working directly with communities on a wide range of projects.

We hope that this guidance informs and inspires, and perhaps even enables you to enjoy your Net Zero journey!

Skelton Toppin Memorial Hall, 1923





Skelton Toppin Memorial Hall, 2023, with solar PV panels now just visible on the central roof

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INTRODUCTION

What is the guidance about and who is it for?

This guide is for anyone managing a village hall and wondering how to improve the quality and performance of their building by making it more energy efficient and environmentally friendly. It is intended as a simple, practical and helpful resource outlining the things management committees should consider when planning how to 'go green', as well as introducing the different technologies that can be used to this end. The experiences of halls that have already done this are referenced throughout. It is hoped, that armed with this information, readers will be inspired and feel more confident to take the first steps on this important journey. Although we refer to 'village halls' the guidance can also be applied to many other similar community-use buildings.

What are the benefits of going green?

Making improvements to a village hall with the aim of going green is not an insignificant undertaking but it can yield several benefits, namely:

- Reducing the building's environmental footprint through a reduction in carbon emissions associated with its operation
- Bills can be reduced by using less energy, and even more so with renewable energy generation
- Comfort of the hall will be improved so it is more popular and can be hired out to groups for more events, and potentially at a higher rate

There are many spin-off benefits too. For example, projects stand to increase community cohesion by bringing people together and create opportunities to make the building more inclusive and accessible, both of which can have positive impacts on mental health and wellbeing.

If each village focusses on its own hall, the efforts can be multiplied by 10,000 across England, and together the impact will be huge.

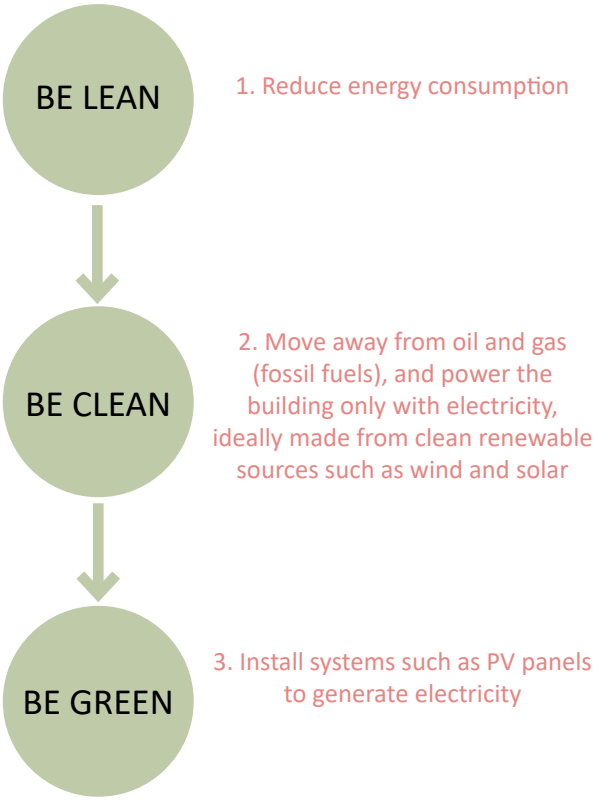
What does 'going green' actually mean?

There is a lot of information and data about the effects of climate change and the impact that people are having on the planet, and we will all be familiar with this.

Going green, in the simplest terms, is about reducing this impact to a point where we are no longer causing harm. There are many aspects to this, such as reducing pollution, looking after nature, and protecting resources, but the focus of this guide is primarily about reducing the amount of carbon dioxide (CO_2) and other harmful greenhouse gases (GHGs) released into the atmosphere due to the operation of village halls.

What is zero carbon?

Phrases like Net Zero and low-carbon are now commonplace, and global, national and local government policy is increasingly focussed on achieving these targets, albeit at a sometimes fluctuating pace. In essence this means reducing CO_2 emissions, or 'carbon', into the atmosphere to reduce global warming. In simple terms this can be achieved through effective building design based on the following principles:



Achieving absolute net zero is currently difficult and causes much discussion, partly because of the use of controversial carbon offsets which are often used by companies to make this claim. Instead of pursuing this however, we would recommend achieving the best 'low-carbon' solution that is realistic, through employing simple and effective measures which generate big wins. In our view this will achieve the greatest genuine positive impact.

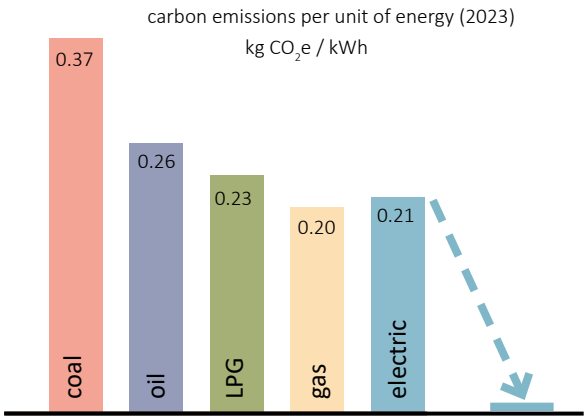

Solar PV installation at Skelton Toppin Memorial Hall in Cumbria

What is de-carbonisation?

Until quite recently most of the electricity generated in the UK was made from burning coal and gas, and consequently the amount of CO_2 emitted in this process was very high and electricity was not very clean. Through a long-term process of de-carbonisation far more electricity is now produced using wind turbines and solar panels, as well as smaller contributions from hydro, nuclear and biomass installations.

This is why it is said that the electricity grid is becoming cleaner or 'de-carbonising', and the carbon intensity of electricity is now a fraction of what it was ten or twenty years ago. The improvements continue and the target is for all electricity to be produced from clean or renewable energy sources which don't emit harmful gases.

It is important therefore that buildings stop using gas and oil and move over to fully electric systems so that they can take advantage of this de-carbonisation.



The chart above shows the carbon emissions (including indirect emissions) measured in kilograms (kg CO_2e) from generating one kilowatt-hour of energy (kWh), known as carbon factors or carbon intensity. With increasing use of renewables the carbon intensity of electricity will continue to fall, eventually to zero.

"think global, but act local"

Can we really make a difference?

In the face of climate change it is easy to feel helpless, but the adage "think global, act local" is very apt.

If each community focusses on its own hall, the efforts can be multiplied 10,000+ times across England, and together the impact will be huge.

It's also OK to "think big but start small". The case studies we've included in this guide show that work can successfully be undertaken in phases and progress can be made through gradual improvements as part of a larger plan. So at no stage is a single large commitment necessarily required.

Why are village halls important?

The importance and impact of a vibrant village hall to a community is well-documented and evident in the most recent survey by ACRE carried out in July 2020. The pandemic also shone a light on how community buildings helped build community resilience.

Growing awareness of mental health, social isolation, and fuel poverty, as well as a more socially-minded approach to healthy living, local business, and life-long learning, mean that the village hall is ideally placed to serve the needs of rural communities in the future. But to be effective, halls must provide good quality space and facilities that reflect the needs and aspirations of the community, whilst being capable of accommodating a range of events and activities on a financially sustainable basis.

A good village hall should and can be a beacon for the community; a well-functioning, inclusive, comfortable, and resilient multi-purpose space, and an exemplar of clean and efficient low-energy design.

The main hall at Trent in Dorset

Structure of the document

This document is primarily in two parts. Part One is about 'How to do it' and explains the overall process and how to pay for it. Part Two is about 'What you can do' and explains the various measures that can be taken to improve village halls, such as insulating, changing the heating system, and installing renewable energy systems. We hope you enjoy reading it and find it helpful.

INTRODUCTION TO THE CASE STUDY PROJECTS

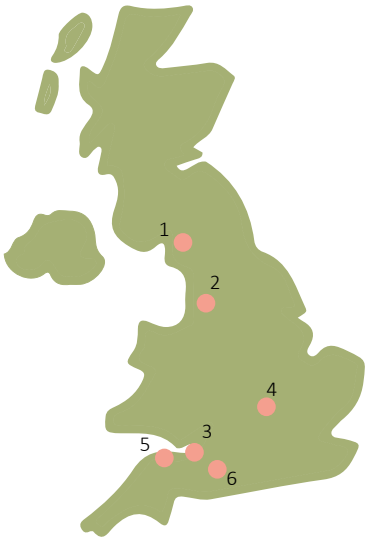
To inform the guide and provide real-life examples, we visited a number of village halls across the country that have already gone green, to learn about the improvements they have made to their building, how they went about them and the difference it has made to their community.

Halls with different characteristics were deliberately selected to include buildings of different size, age and construction, and include projects where both large and more modest sums of money have been spent. Many of these projects started in 2018-19 and so suffered from both the Covid pandemic as well as the subsequent inflation in construction prices. But even through this difficult time the management committees kept the projects going, and by adapting to the many challenges they faced, are now successfully completed and benefiting their community.

1 - Skelton, Cumbria
Originally built in 1923
£200,000 project cost
Complete overhaul including new roof and internal wall insulation, new infrared heating system, and new solar panel (PV) installation

2 - Hurst Green, Lancashire
Originally built in the 1950s
£295,000 project cost
Complete overhaul including new roof and wall insulation and a ground source heat pump

3 - Hewish & Puxton, Somerset
Originally built in the 1960s
£115,000 project cost
New roof and wall insulation and complete internal refurbishment



4 - Haddenham, Buckinghamshire
Originally built in 1960s and extended in 1980s
£90,000 project cost
New roof insulation, new air source heat pump, new solar panel (PV) installation, and electric vehicle (EV) charging

5 - Otterhampton, Devon
Originally built pre-1940s
£290,000 project cost
New roof and wall insulation and new solar panel (PV) installation

6 - Trent, Dorset
Originally built in 1923
£230,000 project cost
New extension, roof and wall insulation and a new air source heat pump

INTRODUCTION TO THE SPONSORS

Funding to research and produce this document has been generously provided by a number of sponsors to whom we are very grateful. The companies featured are market-leaders in their field and fully committed both to addressing climate change as well as working with communities. They each offer products, systems or services that may be useful when greening a village hall.

Utility Aid is the UK's largest energy broker for the not-for-profit sector, and use their scale to make unbeatable cost recoveries on your energy bills. They offer a range of services to all sizes of village halls and community buildings, including invoice validation, net zero, and carbon reporting.

Drawing on 40 years of experience in the industry, Knauf Insulation is leading the change in smarter insulation solutions, for a better world. Our mission is to challenge conventional thinking and create innovative insulation solutions that shape the way we live and build in the future, with care for the people who make them, the people who use them and the world we all depend on.

Baxi is proud to have been manufacturing in the UK since 1866 and has a portfolio of some of the best known and most respected brands in the heating industry. Baxi employ over 1,200 people in the UK and Ireland and are actively involved with designing products that will take us into the zero carbon future.

Herschel is a UK company with UK and international production and has the widest range of infrared heaters available. Herschel is the market leader in modern infrared heating solutions, having completed thousands of projects. With a free, no obligation specification service, you can be confident that you will have the most appropriate heaters to suit your village hall's requirements.

Selectaglaze were among the first companies in the UK to offer secondary glazing and as an original designer have been able to continuously develop products that meet the changing needs of buildings and clients. They offer a complete service with full responsibility for design, manufacture and installation carried out by their own directly employed installation teams.

Established in 1991, FAKRO has over 30 years of experience in providing energy-efficient solutions dedicated to bringing light and access to any space, ranging from pitched and flat roof windows to loft ladders. Our reputation for excellence in innovation and sustainability has positioned us as a leader in the industry.

A leading player in home heating and renewable technology. With over 40,000 happy customers already, Heatable are helping homeowners and businesses alike demolish the barriers in the way of their carbon reduction goals. A Which? Trusted Trader for the 2nd year running, with a relentless pursuit of best-in-class tech, Heatable are paving the way to a greener future.

ZOLB EV is a CPO (Charge Point Operator), providing Electric Vehicle (EV) charging stations to organisations and businesses across the UK. As a CPO, they provide a full service EV charging offering, including consultation, design, supply, install and ongoing management.

CONTENTS

1 PART ONE

HOW TO DO IT

ASSEMBLE A TEAM

Ultimately, 'how to do it' depends very much on what it is you want to do. The village halls we visited show that there are different ways of going green, and this is most effective where the work is carefully planned and based on the fabric of the building and the needs of the community. We start however, by examining the parts of the process which are common to all projects.

A core team

Most of the case study projects were delivered by a core team of two to three people. Any less and the burden can be too great, but with many more involved, communication can become difficult and decisions less easily reached.

We were often told that the grant application process is best handled by one person as there is so much to understand, and this task alone can easily take all the time available to one person. It helps to have another person who is happy to talk to contractors and suppliers and be more involved in overseeing the building work.

Finally, it helps to have someone who is a good communicator and can keep the community and village hall committee up to date and involved in what is happening. In many of the case study projects there was a good relationship between the village hall committee and the parish council, and sometimes a few people sat on both committees and so could provide continuity, build trust, and assist communication.

Around this core team and committee you will likely benefit from having a larger pool of willing volunteers you can turn to for help with specific tasks.

Barbara, Margaret and Niall formed the core team at Hurst Green in Lancashire. Margaret was chair of the Parish Council and Niall was chair of the Village Hall Committee and also the Ribble Valley Village Hall Association

Many of the case study participants stressed the importance of having their community behind them. Input from local residents can inform decisions, boost fundraising, and be a great source of practical and technical help.

Community involvement

Consult the local community early in the process to hear their ideas and views about the hall. This shouldn't be a tick-box exercise, as when it's done well, many genuinely good ideas will come out. Not all ideas can be pursued, but the start of the project is a good time to be thinking with creativity and ambition. Talking to people early should also help reduce the potential for disagreement later in the process.

It may also be possible to team up with local groups. In some of the villages we looked at, local environmental and recycling groups offered their support. Inform the local school about what you are doing as there may be educational opportunities for the pupils to learn about buildings and the environment. It is beneficial to meaningfully involve young people and children as they have a stake in this too, and one day they will be looking after the hall.

Fundraising Panto at Skelton Toppin Memorial Hall

Fundraising

Many of the case study participants organised fundraising activities to help raise money for their hall. This is a great idea as it encourages people to feel greater ownership of the project as they have financially contributed to it, as well as actually raising money.

Other participants talked about the benefit of commencing a small amount of work on the building so that people could see that things were happening, and that often acted as a catalyst for people to donate more money as they could see it would be put to good use. A period of fundraising which is too long can result in fatigue if people are too often asked for money but don't see results.

Community Fair at Haddenham Village Hall

Local expertise

At Trent Memorial Hall in Dorset, David and Paul were not shy about approaching people in the village and politely informing them that their skills and experience were needed. There's obviously a balance to be struck and over-exploiting peoples' goodwill should be avoided, but what David and Paul found was that when people saw others giving their time, they were more prepared to give their own.

Involving the community in this way helps foster a sense of ownership. Remember that people need to make a living from their trade so don't necessarily expect something for free. However, a local person may well be able to offer a special rate or be more generous with their time and expertise if they see it is for a good cause and in the place they live.

Community cohesion

Interestingly, a number of the case study projects were born out of either an attempt to demolish the village hall or a disagreement in the village about its use and future. In these situations, the project can be about more than just the building, and a way of bringing the community together.

Try to see the process as a means by which your community can grow stronger by working together to achieve a common goal, and by involving people at every stage.

After all, if people have contributed only in some small way to helping build or improve the hall, they will be far more likely to use and look after it.

Charitable Incorporated Organisation (CIO) Status

Many village halls are constituted as Charitable Incorporated Organisations (CIOs). It isn't a requirement that your committee becomes a CIO before undertaking work, and among the case study participants there was a range of views on this. Some were comfortable with the liability they felt they had and thought CIO status was an unnecessary complication, but most thought it was a good idea, and were pleased to have the added protection that this offers and had noted that it was a requirement of some funding bodies.

It is not the intention of this guide to say whether you should become a CIO but it is a good idea to have a discussion with committee members before the project starts. ACRE's survey of 2020 found that nearly 13% of charitable halls had adopted CIO status since its introduction in 2011 and we would expect this number to continue rising. We would advise hall committees to contact their local ACRE member for support and to access the Charity Commission approved CIO Constitution for a village hall.

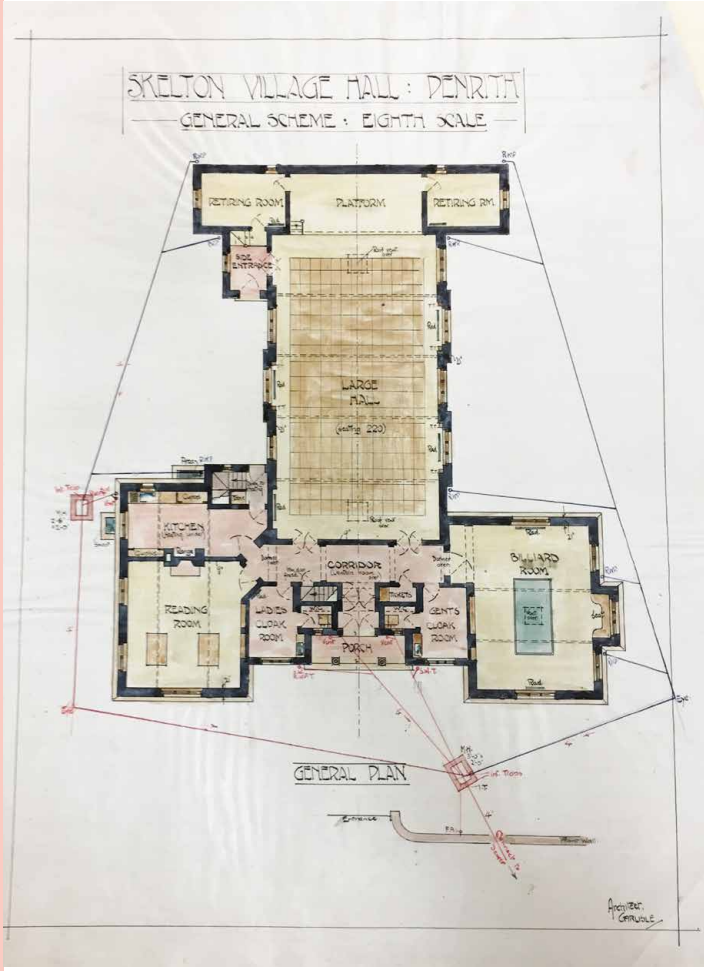
Make a plan

Early in the process work out exactly what it is you want to achieve and how you plan to get there. It may be over many years and comprise many phases, so it's important to agree priorities and to plan the work in a logical order so that you don't regret making impulsive decisions later on.

Think long-term and don't feel you have to do everything at once. The most important thing is to do things well and head in the right direction. Writing a structured business plan will help you focus on this and establishing and agreeing your key aims and objectives will assist in decision-making.

Burnt Horse Folk Band performing at Skelton Toppin Memorial Hall

WORKING WITH PROFESSIONAL CONSULTANTS



The architect Mr J.H. Martindale FSA of Carlisle was appointed to design the original village hall at Skelton, constructed in 1923 as a memorial to the soldiers who lost their lives in the First World War

Of the case study projects we visited, some were undertaken with an architect and full professional team throughout. Others drew on more limited professional advice and support as the committee members felt sufficiently skilled and experienced to take on the work themselves. As architects, we were keen to hear feedback from the participants about their experience, and in so doing a few issues came up from which helpful lessons can be learnt.

Identify the type of advice or help you need

The first involves appointing the right ***type*** of consultant at the start. Some committees engaged an architect, others a surveyor, or a 'surveyor who could also do drawings', or sometimes a project manager. But often this appointment was made without full clarity as to why they were being appointed and what role they would have. Sometimes the appointment was made purely on the basis that someone had advised the committee that they should involve a professional consultant but with no further detail as to why.

Be clear with your consultant about the brief

This sometimes led to a scenario in which the consultant was not fully briefed on what the committee wanted from the project, and sometimes they proceeded to produce work which was not required. In particular, committees found that architects were keen to design extensions sometimes when extra space was not actually a priority, and occasionally these became over budget and had to be scaled back or put aside.

It is important for the committee and the consultant to be clear with each other before any design work is undertaken about exactly what is required, what the priorities are, and what the budget is. Don't assume the consultant will know your brief if you haven't worked through it with them, and if they undertake work you didn't want or ask for then be clear about that too!

Explain to your consultant what you need from them

Another issue that often arose involved consultants preferring to produce generic documentation from the comfort of their office rather than spending time in the hall and getting to grips with the specific situation, face to face with the hall users. This was the case at one case study project where a services engineer produced only generic schematic drawings and spent no time with the committee working out the position of light switches and electrical sockets, which is what they had expected and needed, and thought they were paying for. Again, it is important to explain your expectations to the consultant and agree their services with them before they start work.

Ask your consultant how they will specify

The final issue we identified was that of over-specification, where the consultant had not fully appreciated the budgetary constraints of a village hall, sometimes coupled with an apparent reticence to research and deviate from generic specifications. On some projects tenders came back very high based on the specified products but the sub-contractors were able to reduce these costs by sourcing alternatives of similar quality, which were still from reputable brands, and in one case with a much longer warranty term.

Care must be taken to ensure quality is maintained in these scenarios, and sometimes the higher priced product may ultimately be the better choice. We are certainly not advocating that cheaper is better, but do make sure your consultant is specifying items that are appropriate and suitable for a village hall and its budget. If you don't feel they are then challenge them, as good alternatives may be available.

What level of assistance is right for your project?

On a small project where you are undertaking small works on a phased basis it may be possible to achieve a good result with only limited professional assistance. On more complicated projects you may need professional assistance to get started and produce some drawings, but you can then manage the project yourself during the construction stage.

On larger projects and where there are special situations such as a listed building, an extension, or where a very low energy target is being pursued, we would advise engaging an architect. But ultimately this depends on what the management committee feel capable of, and if there are any gaps in expertise.

Some of the case study participants, for example, were farmers who had done a lot of building work themselves and so felt confident co-ordinating the trades, whereas at Skelton the participants followed the RIBA plan very closely and worked with a good architect throughout the process. They felt comforted by the fact they were being professionally advised from start to finish and the result is a very sensitive, well co-ordinated and thorough project.

Consultants that you might need

Architect:
Can provide an all round service from commencement to completion including design, production of drawings, and a written scope of works or specification, and can assist and advise during the construction stage of the project. Can also provide some advice on cost estimates and elements of project management although this varies among companies.

Surveyor / Project Manager:
Can assist with general advice, cost estimates, and project management at all stages of the project but generally will not be able to provide design services or produce detailed drawings.

Cost Consultant / Quantity Surveyor:
Can provide high level or detailed cost estimates, usually in greater detail and accuracy than an architect.

Planning consultant:
Can provide specialist planning advice in relation to your planning application. For most village hall projects an architect or surveyor should also be able to provide this service.

Structural Engineer:
Essential if any structural alterations or designs are required.

Mechanical & Electrical (M&E) Engineer:
Sometimes also called a services engineer they design and specify the mechanical and electrical services such as the heating installations. Probably only appoint one of these if your architect or project manager has specifically requested their involvement to ensure their scope is focussed and they are properly briefed.

Building Control Body (BCB):
This is the new name for the inspectors who check and certify the building for Building Regulations compliance. On all but the smallest projects you will need a BCB to check the work and issue you with a compliance certificate at the end.

Summary

The use of professional consultants can be invaluable and on some projects they will be essential. The above advice is intended to inform committees how to better deal with consultants, not to avoid them. On other projects however, you may only need a limited service and you need to talk to them and agree exactly the assistance you need.

Ensure that you get the right type of consultant; have they worked on village halls or similar projects before, and more importantly do they seem to understand your needs? Ensure that the consultant is fully briefed, and fees are agreed before they start work. If you aren't sure exactly what they will be producing, then ask them to tell you and show examples of similar work they have done for other people.

Finally, don't forget to ask them to provide you with details of their professional indemnity insurance.

THE DESIGN AND CONSTRUCTION PROCESS

Whether your project is large or small, phased or undertaken in one go, the process will be similar. After undertaking the initial assessment explained earlier in the document, you will need to establish a project brief, and schedule out the improvement works you need to undertake. Usually this will involve the services of an architect or someone who can produce drawings as that's often the best way to convey the information clearly. On more complicated projects you may need your architect to produce two or three options which can be costed, so that you can select the most appropriate.

Planning permission

Not all works require planning permission, and you will need to seek advice from your consultant or the council.

An application can take the council at least eight weeks to decide, and in reality, this can vary from one council to another. If your proposal is contentious then seek advice from your professional consultant as to whether you should seek advice from the council in advance of the application being submitted, although hopefully a low-energy upgrade of the village hall will be something the council will support. Speak to the parish council too as they may be able to apply on your behalf at a reduced rate. ACRE provide further information in their Information Sheet 1 available through ACRE's members.

If you are in a conservation area as 35% of village halls are, or if your hall is listed, as 7% are, then take advice from your professional consultant and ensure the relevant additional consents are obtained.

Tender prices

Depending on the scale of the project and whether you require planning permission, you can then obtain prices from contractors and sub-contractors for the various pieces of work. Whether you go to one main contractor to do everything, or whether you go directly to lots of sub-contractors depends on the scale of work, if you intend to manage work yourself, and whether you are phasing the work. This is an important decision, and you will need to give it a lot of consideration.

You will also need to ensure that the prices you get back cover all the work you need to do. This will depend on the information you send to the contractor and what you ask them to quote for. Smaller undertakings could be agreed by email, but for larger and more complicated work you should ask for more detailed specifications and drawings.

The risk of obtaining quotations without sufficient detail is that the price you are given might not cover the work you need and if it isn't clear then you may find yourself in a dispute with the contractor.

Building regulations

For all but the smallest of projects you will require approval from a Building Control Body who will be either a member of the local authority (your council's building regulations officer), or a registered building control approver, which is essentially a private company undertaking this role.

The building regulations cover a range of matters, but from an energy perspective you will need to meet the standards set out in Approved Document Part L (Volume 2). Further details are given later in this guidance about thermal performance and the standards that will need to be met.

If you are thinking of delivering the project without much professional assistance, we suggest you speak to a Building Control Body officer as soon as possible as it's important the work you do is compliant and supported by necessary certification. If you have appointed a professional consultant, they will be familiar with what you need to do and can advise accordingly.

CDM Regulations 2015

Under the Construction, Design and Management Regulations (CDM) 2015 you will have legal duties as a 'Client', and you should ask your professional consultant to explain these to you so that you can ensure you know what to do. This legislation is about health and safety in relation to the design, construction and operation of the building.

It's nothing to be scared of, as it's all about taking reasonable, sensible and proportionate steps to ensuring the health and safety of everyone, including those involved in the building work and also those who use and maintain it, but it's important that the duties are understood. More information is available by clicking here.

Construction contracts

For most projects, architects will advise the use of an industry-standard building contract, of which there are a number of providers including JCT and the RIBA. These are fair and balanced contracts which most contractors should have at least a sufficient working knowledge of.

In many of these contracts your professional consultant can take an administrative role and act independently, sitting between you and the contractor. They can perform a number of duties intended to protect both you and the contractor, such as monitoring and certifying the work at regular stages, keeping track of the cost and managing changes, and we strongly advise they are used, particularly on sizable projects where there is a single main contractor. On small projects, or where you are engaging individual trades directly such as plasterers and decorators, such contracts may be dis-proportionate to the job, and here you may find simpler agreements are more effective.

You should always obtain a written agreement with a fixed price and ensure the contractor is a member of a recognised trade body to which you would have recourse should anything go wrong. Make sure the price and scope of work is agreed in advance and avoid making payments until the work is completed to your satisfaction with necessary paperwork supplied. Grant providers may also have requirements in relation to appointing contractors so check that these are met too.

Getting to know your new hall

On handover, contractors should be able to provide you with instructions for operating and maintaining the equipment they have installed. If you have a main contractor, they should give you an Operations and Maintenance (O&M) Manual. Ask them to demonstrate how their product or installation works face to face and try to get many people to attend the demonstration so that they too know how the building works.

It will take some time for you to understand how to use the building efficiently. Heat pump settings can need some refinement to obtain optimum performance and you will need to ensure the PV panels are set up to feed excess electricity back to the grid, and receive financial reimbursement.

To get the most out of new installations, it is advisable to keep a close eye on your building's energy use each month. Make sure you have a smart meter and if you monitor usage over the course of a year you will be able to calculate your energy savings against previous use.

It is our intention that we will be able to use this data as more projects complete and assess the impact that this programme is having on village halls nationwide.

Skelton Toppin Memorial Hall during the installation of internal wall insulation

HOW TO PAY FOR IT

The village halls we visited provided us with valuable insight into how refurbishment projects of this kind can be financed.

The good news is that low-energy projects and works that benefit the community fit with the primary aims of many funding bodies. Achieving net zero continues to be an aim of all the major political parties, and so we should continue to see initiatives and funding from central government to help achieve this.

ACRE members are experienced in providing support and advice for village halls going through the funding process. We suggest hall committees contact their local member at the beginning of the process.

Nationwide grants include;

Government funding (your local ACRE member can advise what is available).
National Lottery- Awards for All. Check their website for other programmes.
Foundations such as Garfield Weston, Bernard Sunley, and the Ernest Cook Trust.
Rural Community Buildings Loan Fund.

Sources of local grants include;

Section 106 money, usually allocated through the parish council.
Local councils.
Local environmental or landfill funds, such as Biffa, Veolia or Viridor.
Check also for other local funds specific to your area.
Most importantly, check what funds are available through ACRE's county based members.

Grant funding

Assembling grant funding was described to us by many of the case study participants as a time-consuming process. Funding bodies have different application processes, award criteria, and timescales. It is important to read information provided by grant funders so that you understand what they can and cannot fund and their timescales. Ask questions before completing the application forms.

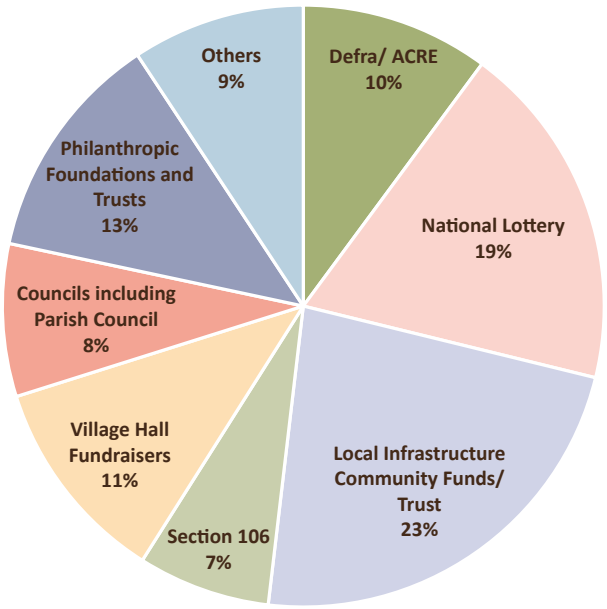
Of the village hall groups we spoke to, many said that obtaining funding was the most difficult part of the project with progress made often through trial and error. Sometimes it was only at the end of the process that applicants discovered that the body they were applying to didn't provide a grant for the sort of work they were undertaking. Some grants would only be paid after the work was carried out, whilst others would only cover one aspect of an installation such as the product but not the associated labour.

There was also mention of match-funding and deadlines that clashed with those of other awarding bodies making the co-ordination and timing of applications very important. We also learnt that many funding bodies will only grant funding once planning permission has been gained so committees should expect to undertake some fundraising early on to be able to pay an architect or surveyor for drawings suitable for this purpose.

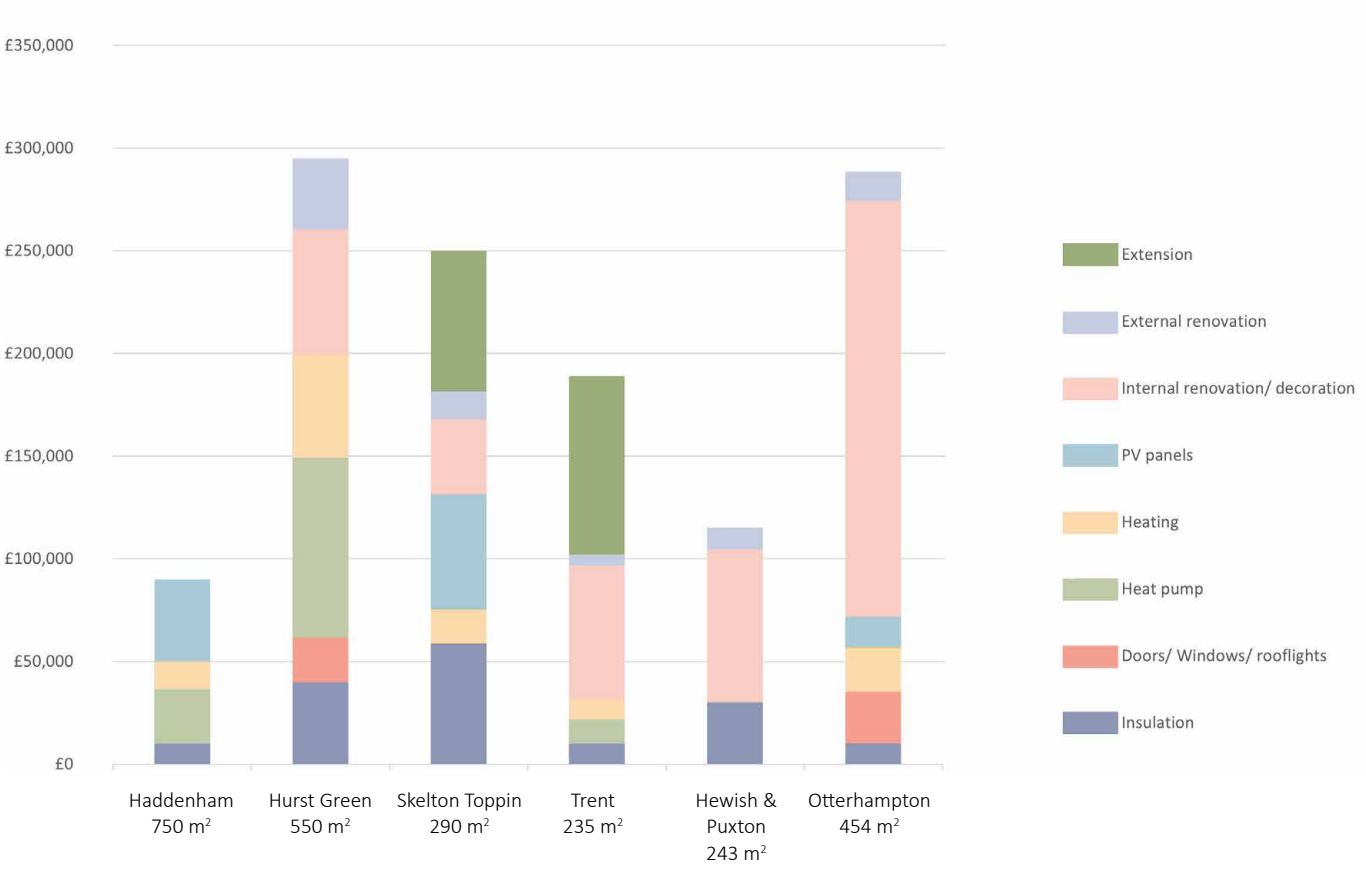
The following table shows some potential grant funders, but the list is not exhaustive and you should do your own research as you may well find other sources.

Funding sources for the case study projects

The pie chart below gives an indication of the variety of funding sources available to village halls and shows where the six case study projects obtained their grants. The chart is an average for the six case studies and individually they obtained different proportions of money from different sources depending on their location, type of work, and application success. Exact sums that each of the case study projects obtained are detailed in the case study section at part three.



Typical sources and proportion of funding for the six case study projects



Approximate construction costs (including VAT) for each of the case study projects, mostly undertaken 2020-2023.

Construction costs for the case study projects

The approximate construction costs for the six case study projects are shown above and vary from just under £100,000 to almost £300,000, including VAT. The halls at Hurst Green and Otterhampton are both large and needed extensive work throughout, and hence are the highest cost. While Haddenham is even larger, the condition of the building was good so the budget could be focussed on just three key energy saving measures.

The chart reveals how different halls have different requirements depending on their condition and priorities of the committee. It is useful in giving an indication of the sums of money that might be expected in undertaking various types of project. The projects were mostly undertaken in the years 2020-2023 so be aware of inflation and the impact this might have. Further details are available in the case study section at part three.

Contingency

Many of the case study participants mentioned the need for a contingency sum of money to cover costs which were unknowable at the time of the funding applications. It is quite common when working on an existing building for things such as asbestos to be discovered, which need to be removed, or previously uncovered parts of the building reveal problems that must be fixed.

Usually, we would recommend a contingency of between 5 and 10% of the whole construction cost. That said, it appears that most funding bodies do not make provision for the award of contingencies in their grants so halls should expect to cover any unforeseeable items with their own funds.

VAT

Village and community hall committees must pay VAT on refurbishment, maintenance, and repair work on the hall. Where halls are VAT registered they can make a reclaim but most are not, and advice should be taken from an expert. Information sheets regarding VAT are available from the ACRE members.

Before beginning a project check that your architect and contractors understand the VAT situation and if there is any doubt obtain details in writing from HMRC. Verbal advice may not stand up later! Remember to check whether VAT is included when obtaining quotations for work.

However, from 1st February 2024 until 31st March 2027 a zero rate of VAT will apply to energy saving materials in buildings used for charitable purposes. From March 2027 there will be a reduced rate of 5%. See section 2.7 of the Government Guidance.

UNDERSTANDING ENERGY USE

How much energy does your hall use?

To understand what improvements you can make, it is helpful to know how much energy your hall is currently using. Once the work is complete this can be re-measured and the difference in performance should be evident.

For mains gas and electricity, you can establish historical energy use by looking at your energy bills and finding the number of kilowatt hours (kWh) that were used over the last annual period. For oil and LPG supplies this is a little more complicated but if you estimate the number of litres you use or get delivered in a year and multiply this by a factor of 10.35 for kerosene or 7.28 for LPG, this will equate to the number of kWh.

Now measure the size of your building in square metres. This should be the whole building subject to heating, including connected rooms and annexes. By dividing the total number of kWh used per year by the number of square metres you will be able to approximate the total energy use per square metre per year (kWh / sqm / year). For example, if a village hall that has 180 sqm area used a total of 4,000 kWh electricity and 1200 litres of kerosene per year, the calculations would be:

4,000 kWh + (1200 x 10.35) kWh = 16,420 kWh / year.

Per square metre, the use would be 16,420 kWh / 180sqm = 91 kWh / sqm / year.

Understanding this as a rate *per square metre* is important as it accounts for the size of your hall, allowing for a more accurate comparison between halls.

The case study projects

Interestingly, the data we have from the case study projects suggests that most village halls aren't using large amounts of energy. This is probably because they are used intermittently and heated to lower levels. The conversations we had with representatives of the case study halls led us to believe that the relatively low energy use prior to work being undertaken was largely due to the frugal use of heating systems. Users knew their halls were difficult and costly to warm up and so they were rarely, if ever, heated to comfortable levels. This in turn meant they weren't very well used. In comparing energy use before and after the improvement works it needs to be remembered therefore, that we are comparing an uncomfortable cold hall with a subsequently warm one.

Target energy use

In the previous example we calculated that a village hall is currently using 91 kWh/sqm/year. But what could this figure be if the building were energy efficient?

The Royal Institute for British Architects (RIBA), has a target for non-domestic buildings of less than 55 kWh/sqm/year by 2030 and other organisations such as LETI (Low Energy Transformation Initiative) have similar targets and suggest a maximum demand for space heating alone of 15 kWh/sqm/year.

It is interesting to see what can be achieved. We have post-completion energy use figures for two of the halls we visited, at Hewish & Puxton and Trent. Figures for Skelton Toppin Memorial Hall will become available a year after their project is completed.

Case Study Projects

Energy use before the improvement works

Trent Memorial Hall, in 2018, used 2033 kWh of electricity and just over 1000 litres of LPG, resulting in a total use of 9,313 kWh / year, which for a hall of 185sqm is a use of around **51 kWh / sqm / year**.

Hewish & Puxton Village Hall, in 2019, used approximately 2650 kWh of electricity and 1600 litres of kerosene per year, resulting in a total use of 19,210 kWh / year, which for a hall of 240 sqm is a use of around **80 kWh / sqm / year**.

Skelton Toppin Memorial Hall, used 3500 kWh of electricity and around 1370 litres of kerosene, resulting in a total use of 17,680 kWh / year, which for a hall of 290sqm is a use of around **61 kWh / sqm / year.**

Case Study Projects

Energy use after the improvement works

At **Trent**, the hall was insulated, and the existing LPG heating system replaced with an air source heat pump. In 2022, their energy use was entirely electric comprising just 3,884 kWh per year, for a hall which was also extended to a total of 235 sqm. This resulted in a use of **16 kWh / sqm / year**. A drop from 51 to 16 kWh / sqm / year represents an impressive 67% reduction.

At **Hewish & Puxton** where the hall was insulated but the existing oil heating source retained, the building used 2956 kWh of electricity, and 1150 litres of kerosene in 2022, resulting in a total use of 14,859 kWh per year, or **62 kWh / sqm / year.** This represents a 23% reduction in the energy used, but most importantly the building became warmer and more comfortable.

Energy use, cost, and carbon impact

Energy use is one important metric, but we also need to consider financial cost as different types of energy have different rates per kWh, as well as carbon impact as different types of energy have different carbon emissions.

Earlier in the guidance we set out some of the different carbon factors, explaining that burning fossil fuels causes greater CO_2 emissions than renewable energy systems.

Later in the guidance we will also look at the energy cost differences and explain how and why energy use reductions do not necessarily translate directly into commensurate cost reductions.

In essence it's quite simple however, and if we follow the 'be lean, be clean, be green' process set out in this guidance, energy use, cost and carbon impact will all reduce.

The charts on this page show energy use, cost and carbon impact for the case study halls at Trent and Hewish & Puxton. Each column shows the amount before and then after the improvement works. The costs were calculated using the same figures for before and after the works to enable a fair comparison irrespective of inflation.

Energy prices used are;

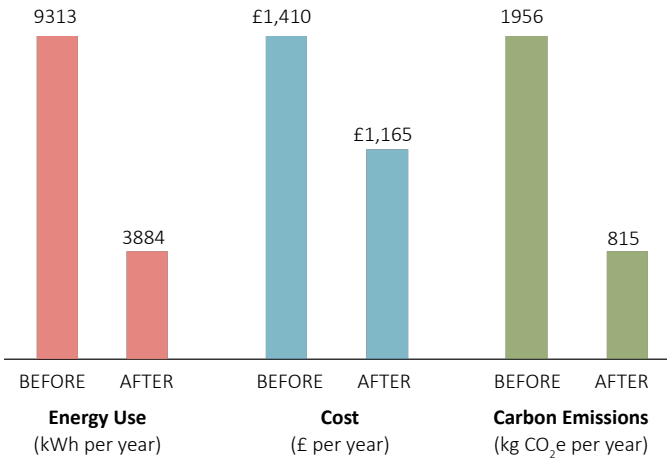
- 80p per litre for LPG
- 80p per litre for kerosene
- 30p per kWh for electricity

The Carbon factors used, in kg CO2e / kWh, are;

- 0.21 for LPG
- 0.26 for kerosene
- 0.21 for UK grid electricity

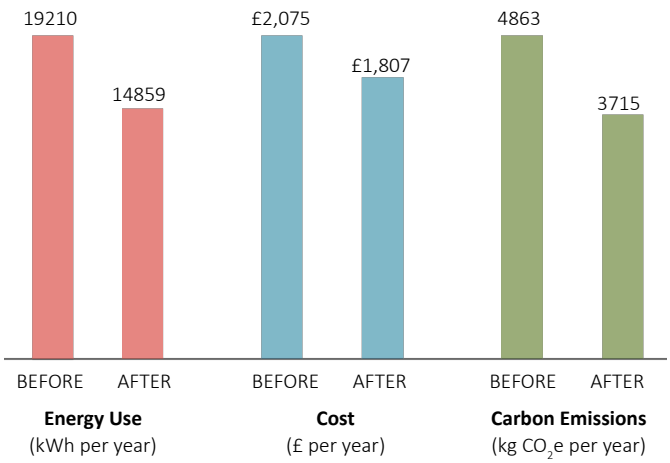
Trent Memorial Hall

The chart below shows the reductions achieved at Trent where an air source heat pump was installed, giving significant reductions in energy use, cost, and carbon emissions. With potential installation of PV panels in the future all these figures could be reduced even further.



Hewish & Puxton Village Hall

At Hewish & Puxton village hall, shown in the chart below, the existing oil boiler was retained, and so while reductions have also been achieved across the board these are not quite as steep. Significantly they have however made reductions while also making the hall much warmer and more comfortable. In the future the oil boiler could be replaced with an all-electric system such as an air source heat pump, and reductions similar to those at Trent could most likely be achieved.



Energy Performance Certificates (EPCs)

You may be familiar with EPCs and may already have one for your hall, and as a very broad guide to understanding the energy efficiency it's not a bad place to start. The EPC calculation is only an approximate guide however and there are many factors which it doesn't include, and much depends on the thoroughness of the assessor.

In our view you shouldn't rely solely on the EPC. You will learn much by undertaking your own assessment and calculations. The amount of energy the building used in a year and its size can't be contested, so as long as the calculations are done correctly the result will be an accurate figure. Be aware that the numeric scores on the EPC certificate don't relate in any way to the energy use figures explained previously.

Professional independent energy audits

You may wish to commission an independent energy audit of your hall. Many funding bodies now require this and we would recommend it. It will be very useful to have the views of a professional, but we would recommend that you still undertake your own assessment and calculations alongside this as it will help you understand the audit and get more out of it.

Refer to your local ACRE member who can put you in touch with local companies that can provide this service.

Passivhaus and Enerphit standards

Passivhaus is a standard for new houses which consume almost zero energy. These buildings are as close to genuine net zero carbon as is currently possible to achieve. However, the Passivhaus standard is intended for new buildings, so it is not suitable for the conversion of existing buildings. There is however another similar standard called Enerphit which is intended to be applied to the conversion of existing buildings and requires buildings to have a space heating requirement of no more than 15 kWh/sqm/year.

Enerphit is a very high standard that can only usually be achieved in houses with a mechanical heat recovery ventilation system instead of ventilating by opening windows, which effectively means sealing the building. This can be an expensive solution which is not particularly compatible with the way village halls are used. However, we are not in the business of dissuading adventurous committees who may wish to push the envelope, and it is also possible to take an 'Enerphit-informed' approach which gives greater flexibility while still achieving excellent results. If you would like to achieve this level of performance it is essential that you engage a suitably experienced architect, and we would advise obtaining some cost estimates early in the process.

Thermal imaging surveys

The use of thermal imaging cameras which use infrared to identify cold spots in the building fabric can be interesting. On an existing building with little insulation, and where a full upgrade is needed, the requirement for a thermal survey is questionable however, as the results may add little to identifying the solution. It can be reasonably expected that the windows and their surrounds as well as the ceiling/wall junctions and other known thermal bridges will be performing poorly.

A well-designed insulation solution which is continuous and properly installed will resolve these weak points. Only in situations where insulation is already partially installed, and the performance of the building isn't clear due to inconsistencies within the fabric would we suggest obtaining a thermal imaging survey. Do however listen to the views of the professional surveyor as all situations are different and should be assessed individually, but always ensure that there is a clear purpose if you are paying for one.

Other environmental standards

The are many other environmental standards such as BREEAM, LEED, SKA and WELL. These are sometimes adopted by companies and large organisations who either wish to demonstrate their environmental credentials or are compelled to do so by condition of the planning consent. They all cost money however, and the money spent does not always translate directly into a better performing building. In our view these standards are not appropriate for village hall improvements and all money spent on the project should have tangible outcomes which directly improve the quality and performance of the building. When the improved building is up and running, the actual energy use can be evaluated, and those figures will determine how successful the project really is.

GETTING STARTED

From a financial point of view, getting started with a village hall refurbishment project can be difficult because many grant funders require either planning permission or some type of survey or drawings before they will award any money. If your village hall committee is unable to secure funding specifically for commencing the process then the early stages will need to be financed using the halls reserves or local fundraising activities. Typically costs at this stage include:

- Professional services such as an architect to produce drawings, or a surveyor to provide costs
- Costs associated with submission of a planning application
- Surveys such as a structural, asbestos, or drainage survey
- An energy audit

Initial assessment

The first thing you need to do, and have probably already done to some extent, is assess the hall in its current state and understand a few key things about its condition and performance. You know and understand the building well so don't underestimate your knowledge or assume a professional will always be able to identify everything that you may be aware of. Start a basic schedule of things that you know need to be improved.

The first question you should ask yourself is whether the building is structurally sound and watertight. You will probably know already if the roof is leaking or if there are areas of damp, but it's worth adding these items to the schedule as before any improvement works are undertaken the fundamentals of structure and water-tightness need to be right. If you have concerns about an aspect of the existing structure such as the foundations, or cracking in the walls, or a sagging roof then you should contact a structural engineer for an assessment. Any areas of existing damp should also be rectified prior to other works being undertaken such as installing insulation, so that there is no risk of trapping moisture within the fabric of the building.

Next it is worth thinking about the source/s of energy you currently use. If this is gas or oil then a positive step in terms of improving the environment would be to replace this with an all-electric system.

You should look at the fabric of the building and try to understand what materials the walls and roof are made from.

- How old is the building and has any work ever been done to it?
- Do the walls look like they might be modern cavity walls or are they older solid walls?
- What about the floor? Is it a suspended timber floor or a solid floor bearing on the ground?
- Are the windows single or double-glazed, how many are there and what is their condition?

Insurance

If you are planning building work at your property, it is important to notify your insurers or brokers before proceeding with any work. It can be stressful and sometimes costly for a committee to alter arrangements once they have been finalised.

During construction you will be exposed to an increased risk of an insurance claim. It is important to ensure that adequate cover is in place for the building risks and for any additional sums insured. A specialist building contract may be required to establish responsibility with the contractor for the existing structure as well as for the work in progress.

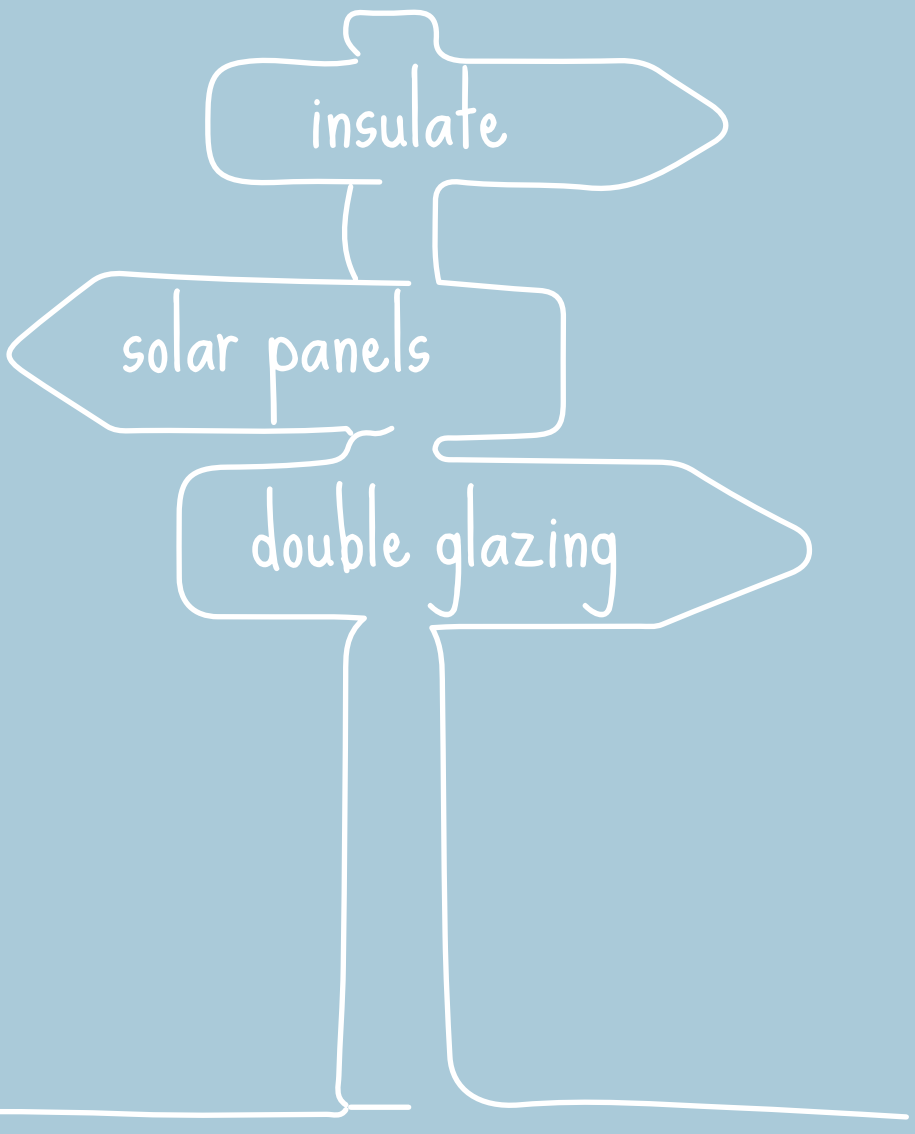
If you are considering installing a solar PV system inform your insurers of this too, and ask if they have any specific requirements that need to be met. We have heard of some insurers requiring extra levels of fire resistance to the rooms where batteries are kept and you will need to make sure this is addressed. Similarly, the installation of electric vehicle charging points should also be discussed with your insurers.

Asbestos

Early on, it's important you find out whether your hall has any asbestos-containing materials (ACMs) in it. You may already have a management survey, register, and management plan detailing this, but you should also commission a "refurbishment and demolition survey" as it is likely you will be undertaking work which disturbs the fabric of the building. This should then be made available to anyone working on the building so that they know where ACMs may still be present. Also read ACRE's Information Sheet 14 which is available through ACRE's members.

The Centre for Sustainable Energy has produced a detailed list of things you might want to look for, which can be downloaded by clicking here.

The installations and equipment that you already have in the hall may well influence how you go about the project. For example, at Haddenham Village Hall they already had a network of air ducts running from the plant to the hall and other rooms, so it made sense for them to keep these and re-use them. All they needed to do was to change the existing gas boiler to a new air-source heat pump and connect this to the existing ductwork. In another hall this might not be feasible however, so think about what you already have and how it might be re-used.



CONTENTS

PART TWO

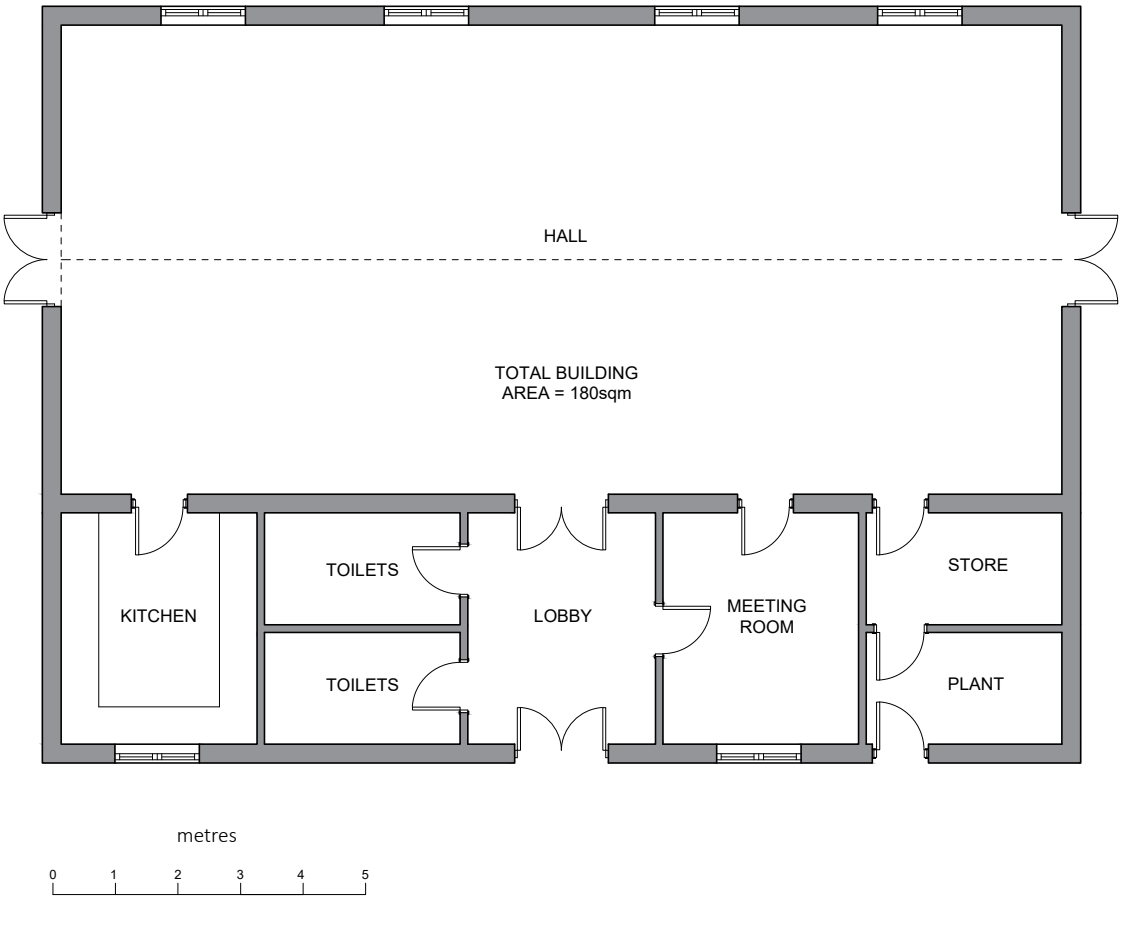
WHAT YOU CAN DO

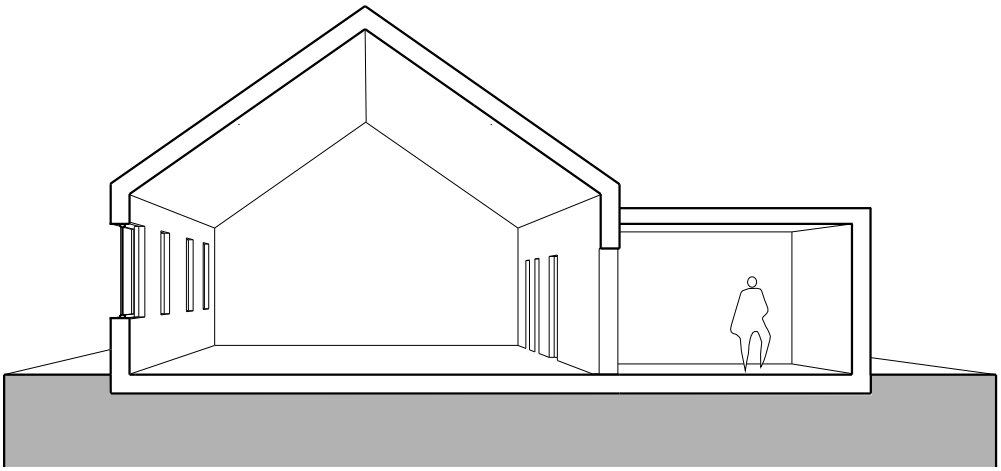
OUR 'TYPICAL' VILLAGE HALL

To help explain what you can do, and how the sponsors' products can be used to achieve these outcomes, we have designed a 'typical' village hall to serve as an example. It is a simple single-storey building comprising a main hall with a pitched roof and a series of smaller rooms along one side. It is 180sqm and similar to many of the halls we visited.

Our typical hall is used to demonstrate how a typical village hall can be insulated, how it can be heated, how PV can be integrated, and how the quality and comfort of the spaces can be improved, while reducing energy consumption, cost, and environmental impact.

Floor Plan





Building section showing the main hall space with a pitched roof and smaller ancillary rooms to the right

This part of the guidance explains in more detail how being 'lean', being 'clean', and being 'green' can actually be achieved.

This page illustrates the improvements that can be made to your hall, step by step, at a strategic level. The diagrams show indicative figures for energy consumption, cost, and carbon emissions, per year, for the typical village hall going through each step of the process. Actual figures will be different from hall to hall and they will have different requirements depending on their specific location and condition, but generally the process will be similar.

1) Be Lean : Reduce your energy use

We start by looking at improving the fabric of the building to reduce energy use by reducing heat loss. This involves insulating the building, reducing draughts, and improving windows and doors. On the following page the improvements in performance that can be made are explained. Energy use, running cost, and carbon emissions will all be reduced. Knauf Insulation and secondary glazing manufacturer Selectaglaze explain how their products can help achieve this.

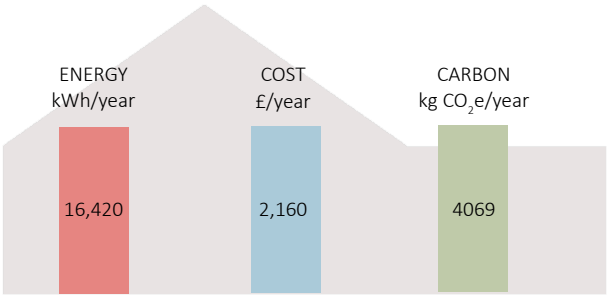
2) Be Clean : Switch to clean electricity

We then look at how you can switch your heating from gas or oil to an electrically powered system to take advantage of clean energy. We explain the two most common methods; installation of a heat pump, and installation of infrared heating. Both have their advantages and will be suitable for different situations. This step will mostly reduce energy use and carbon emissions, with any reductions in cost largely determined by the comparative price of fuels at that time. Our sponsors Baxi and Herschel provide further information about how their products can help, and Utility Aid can save you time and money with energy advice.

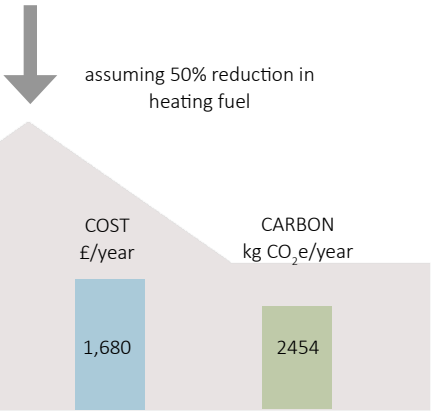
3) Be Green : Generate your own power

Finally, we look at how generating your own electricity can, on top of the substantial savings already made, cut energy use, cost and carbon emissions even further. The results are significant at this stage because the PV panels can now contribute to running the electric heating system. Our sponsor Heatable provides more information about their solar PV systems.

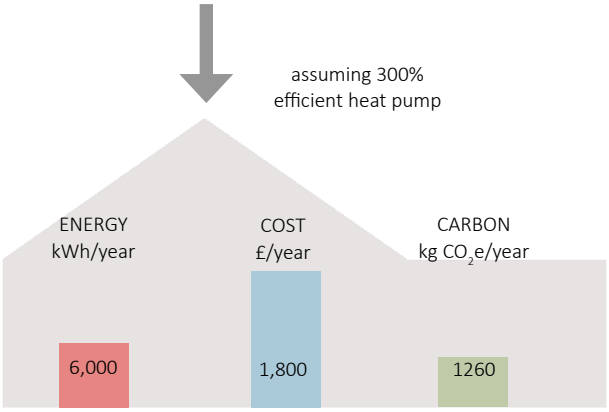
Additional information is then provided about other steps you can take, such as installing electric vehicle charging points, with guidance from our sponsor ZOLB EV. Ensuring your hall has good daylight and ventilation, and how this can be achieved through the introduction of rooflights, is explained by our sponsor Fakro.



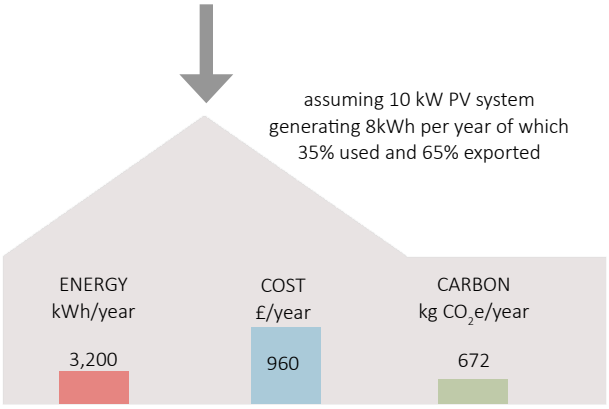
An un-insulated hall with fossil fuel heating (e.g. oil, LPG or gas)



1) Be Lean : The hall is now insulated but still has fossil fuel heating



2) Be Clean : Insulated hall + new electric heating system



4) Be Green : Insulated hall + new electric heating system + solar PV panels

Above calculations assume a 180sqm hall, initially using 1200 litres kerosene and 4,000 kWh electricity per year. Calculations take cost of kerosene at 80p per litre and electricity at 30p per kWh. Assumed carbon factors 0.26 for kerosene and 0.21 for electricity. Benefits from selling surplus electricity generated by PV back to the grid or to EV chargers are not included. The figures assume the same level of occupancy before and after the work.

FABRIC FIRST - IMPROVING THE BUILDING ENVELOPE

Comparing heat loss

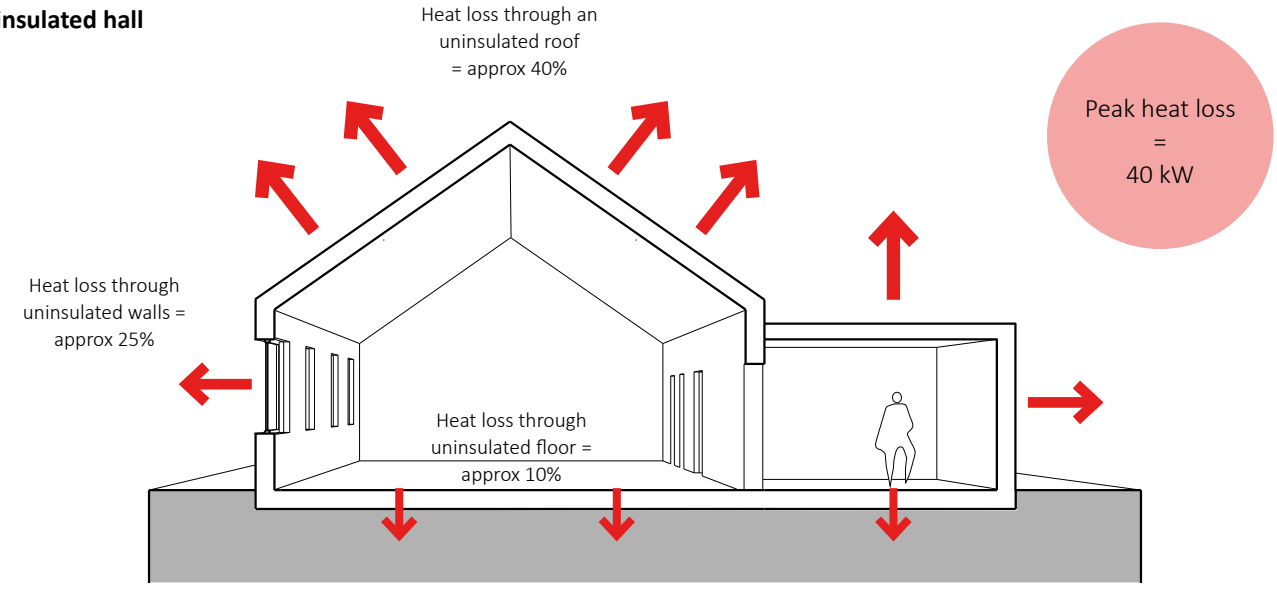
The bigger the temperature difference between the inside and outside of a building, the faster the building will lose heat in winter and gain heat in summer. Insulation helps maintain a stable internal temperature by slowing heat transfer by convection, conduction, and radiation.

A well-insulated building is therefore more energy-efficient, which will result in lower energy consumption and running costs, and reduced carbon emissions.

Due to the size and volume of a typical village hall around 40% of heat can be lost through the roof, and a further 25% through the walls. Typically village halls are not highly glazed so heat lost through the windows and doors is less, but is still significant, particularly if they are poor fitting. The amount of heat lost through the floor depends on whether it is a draughty suspended timber floor, or a better performing solid floor which bears directly on the ground.

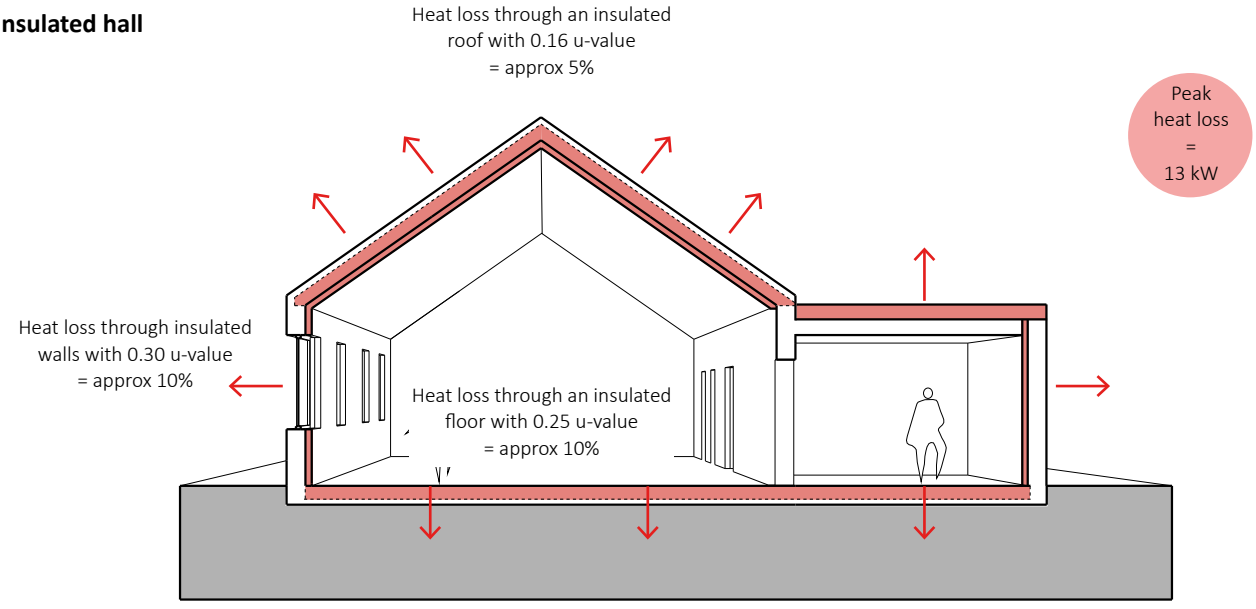
The diagrams below show the amount of heat lost through an uninsulated hall and then an insulated hall. This is based on an assumed 1.5 air changes per hour, a 21 °C indoor temperature and a -5 °C outdoor temperature. The calculations have been kindly provided by Baxi.

Uninsulated hall



Example village hall with no or very little insulation.
The remaining 25% of heat is lost through the glazing and air infiltration.

Insulated hall



Example village hall with insulation to the roof, inside of the walls and floor.
Approximately 5% will be lost through the glazing and the remaining 70%, the bulk of the loss is now through air infiltration.
The assumed 1.5 air changes per hour is a cautious figure and it is hoped that installing new insulation would achieve better than this. To reduce the heat loss further the next step would be to improve the air-tightness.

The first and most important part of your project will nearly always be to improve the fabric of the building so that it conserves heat better, often referred to as 'retrofitting'.

Space heating is usually the largest proportion of energy used by a village hall so reducing this load will have a significant impact.

Heat loss from a building occurs in many ways but mostly through uninsulated walls and roofs, poor quality windows and doors, and through other gaps in the fabric including chimneys. In addition, hall users also cause heat loss by opening windows and doors, which is of course necessary to use the building. We'll look at how this can be mitigated in more detail later.

Most heat loss can be reduced by installing insulation to the roof, walls and sometimes the floor. You should pay particular attention to the roof as this is where the greatest heat loss occurs and should always be addressed as a priority. Sometimes this measure alone can significantly improve the performance of a building as many roofs may have no insulation at all.

Types of insulation

There are many types of insulation on the market with different properties which make them suitable for different applications. Selecting the right product should be made on an individual basis which is specific to each project.

We recommend the use of simple and robust products such as mineral-wool insulation, sheeps-wool insulation, wood fibre board, and rigid board insulation.

There are also other options available such as spray foam and thin foil insulation but great care is required with these products, and we recommend they are only considered if advised by an architect or similar professional for a specific purpose where other products cannot be used.

U-values

The thermal performance of a material is measured by its U-value. The lower the number, the better insulating it is. In old buildings the walls and roof might have a U-value of 2 and the windows of 5 or 6, whereas in modern high-performing buildings the figures tend to be between 0.1 and 0.3 for walls, roofs and floors, and 1.0 to 1.6 for triple and double glazed windows.

Part L (Volume 2) of the Building Regulations is about energy performance and if you are renovating an existing thermal element then the following U-values must be met;

- Pitched roof with insulation at ceiling level 0.16
- Pitched roof with insulation at rafter level 0.18
- Flat roof 0.18
- Wall with cavity insulation 0.55
- Wall with external or internal insulation 0.30
- Floor 0.25

Historic and listed buildings

Making buildings more air-tight is one method of reducing heat loss as this makes them less 'leaky'. This is usually achieved with a continuous air-tight membrane fitted to the inside of the building and can make a big difference to the performance. Care needs to be taken however, as the membrane along with other modern materials, can restrict the breathability of the fabric and potentially trap damp which may be unable to dry out. In historic and listed buildings this must be avoided, as it is important to allow the building to breathe.

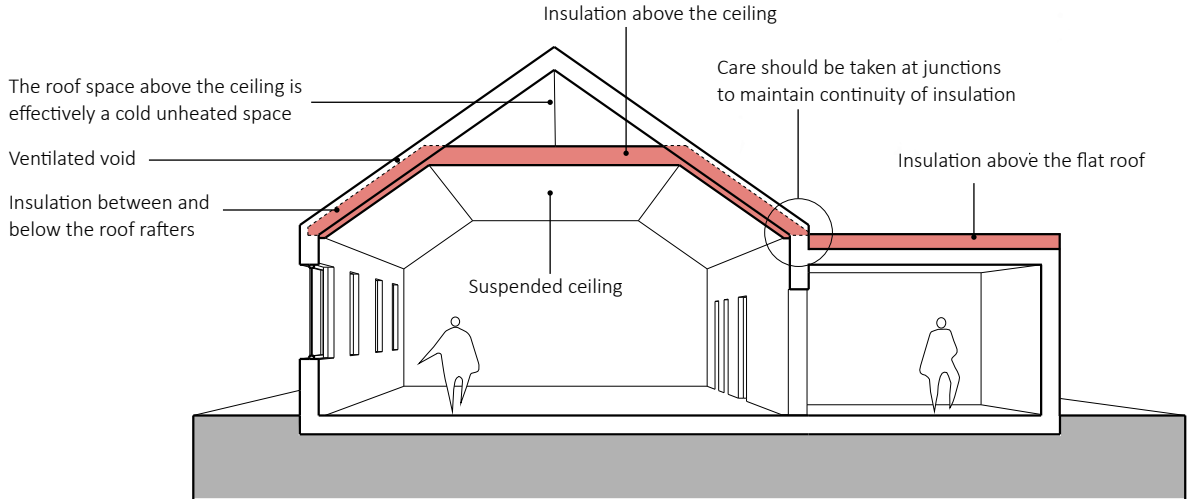
Historic England has produced some useful guidance on this subject which you can access by clicking here.

However, don't be put off if your village hall is very old or listed as there will be improvements you can make. Historic and listed buildings are also required to play their part in reducing energy consumption, and Historic England allows and encourages energy efficiency improvements which are sensitive and don't harm the special status of the building. Seek professional advice from an architect or surveyor with suitable experience and ensure the necessary listed building consents are obtained.

Roof insulation

Assuming the roof is pitched, there are two main ways to insulate a building; either at rafter level which means adding insulation between and directly beneath or above the sloping roof rafters, or at ceiling level which means adding insulation directly above the ceiling, as shown in the below diagram.

Where the ceiling is located mid-way up the rafters the solution may be a combination of both methods. The insulation should be installed continuously, which means without gaps or significant reductions in the thickness, and in some cases the roof may require ventilation above the insulation, to prevent the build up of interstitial condensation.



Roof insulation installed at rafter level and directly above suspended ceiling level

Ensuring your ceiling insulation is properly installed

If your hall already has ceiling insulation it is worth having this inspected as it may have been interfered with and no longer provide a continuous thick layer. It is common to find loft spaces where the insulation is doubled up in some areas and completely missing in others.

This sometimes happens when electricians and other maintenance people have pulled the insulation away to undertake work but failed to replace it properly. In other situations, we've found insulation missing at the perimeter where it was too difficult to install in the eaves. Gaps like this can significantly reduce the performance of the insulation and need to be remedied. The adjacent photograph shows how it should be installed properly, but the challenge is to keep it that way post-installation.

Properly installed ceiling insulation. Photo courtesy of Knauf Insulation.

Wall insulation

External walls can also be a large source of heat loss, but whether and how these should be upgraded depends on several factors. ACRE's survey of 2020 revealed that almost 80% of village halls are brick or stone construction, with only a small number being timber or concrete. As 60% of all village halls were built before 1960, we can reasonably assume that most of these are solid and not a cavity construction. More recent buildings are more likely to have cavity walls but do not assume they will have adequate insulation.

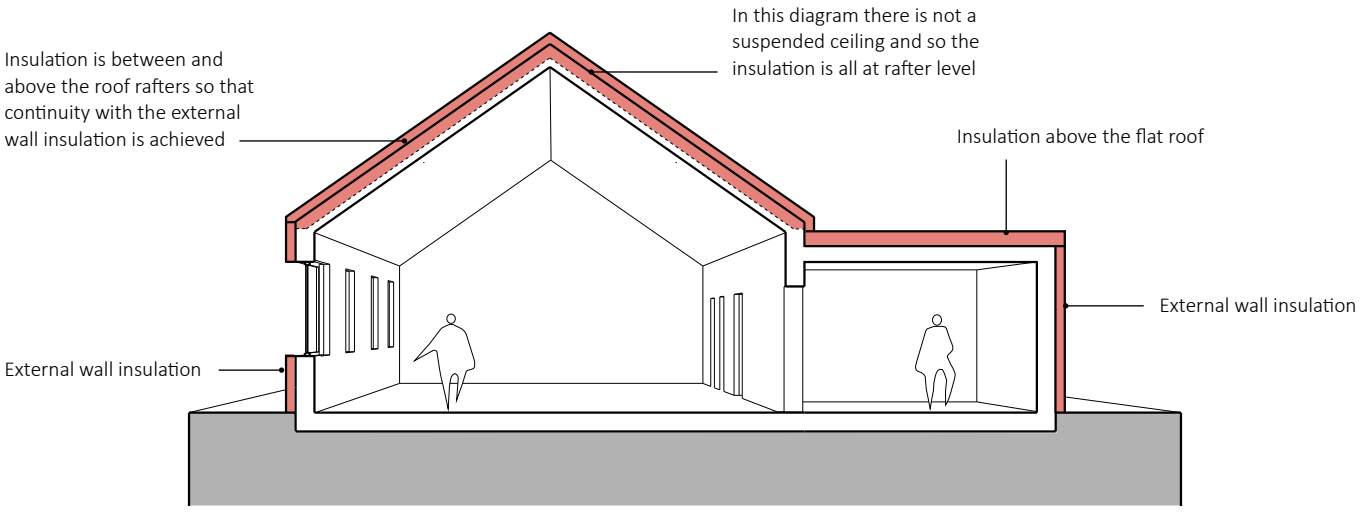
There are three main ways of insulating an external wall; externally, internally, or if it is a cavity wall by inserting a blown insulating material into the gap. The methods of insulation have different advantages and disadvantages which are explained below.

External wall insulation

In terms of providing a continuous insulated envelope this is the best approach and should always be considered and evaluated as an option. Depending on the appearance of the village hall covering the outside with insulation may or may not be desirable. In some situations, this may offer the perfect opportunity to improve the appearance of the building but in other situations it may not be appropriate and insulating on the inside may be preferable.

With external wall insulation a new external surface will be needed which is typically achieved with some form of render or cladding, and this should be carefully considered in terms of appearance, durability, fire performance, and cost. Putting insulation on the outside of the building will also make the walls thicker and unless the existing roof has suitably large overhanging eaves which can accommodate this depth, some additional work to the roof may also be required.

External wall insulation applied to a brick facade



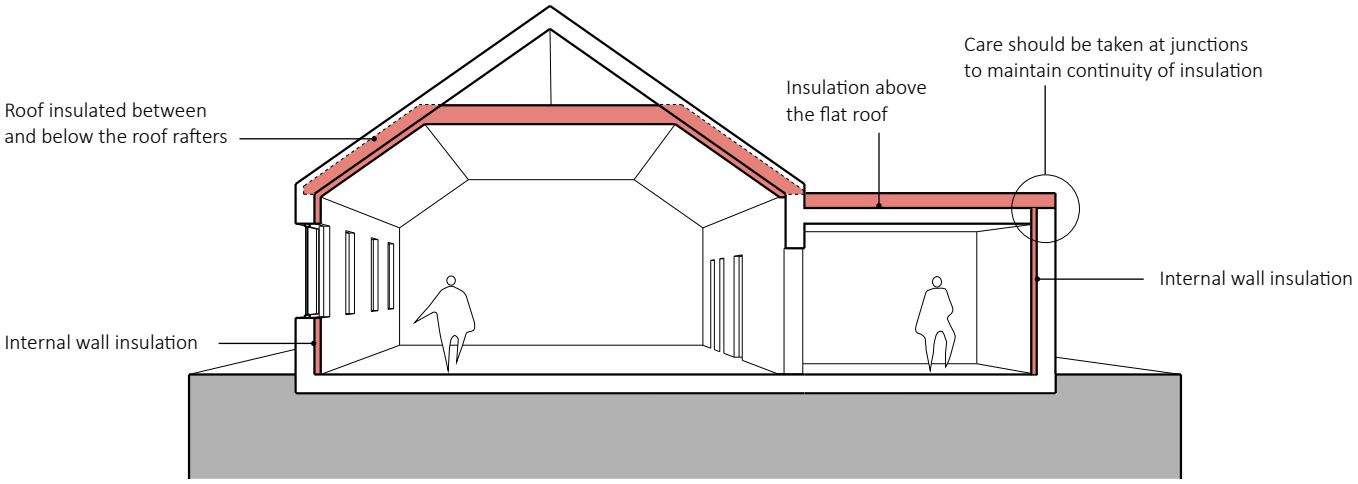
External wall insulation with a roof insulated between and above the rafters

Internal wall insulation

An advantage of this option is that it doesn't affect the external appearance. It too has its challenges however, as it will make the rooms slightly smaller, and existing radiators, skirting boards, wood panelling and anything attached to the inside of the wall will need to be first removed and then replaced. It does however provide the opportunity for new internal wall finishes which may help improve the internal appearance.

During installation, it is important to seal the perimeter of the air space behind the insulated linings and seal any service penetrations. Cold air moving around or through holes in the external wall or insulation will increase heat loss. A vapour control layer should also be installed on the warm side of the insulation, to help prevent condensation.

Internal wall insulation



Internal wall insulation with a roof insulated between and below the rafters and a suspended ceiling

Cavity wall insulation

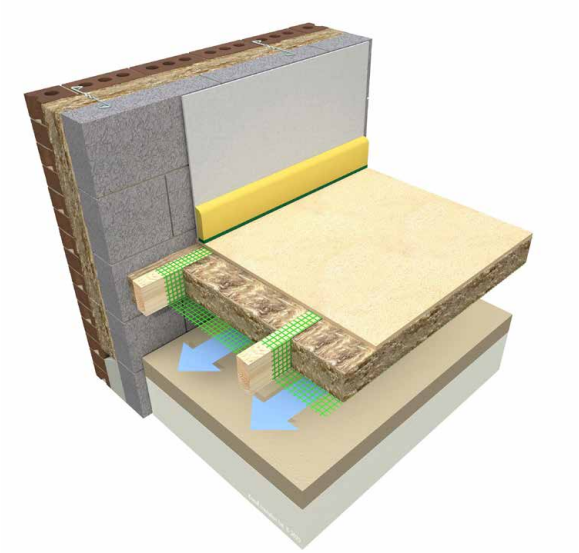
If the hall has un-insulated cavity walls it may be possible to have new insulation blown into the cavity. To help maximise thermal performance with this method, ensure the product is installed correctly and choose an insulant that carries third party certification and has been tested to resist moisture transfer across the cavity.

Knauf Insulation's glass mineral blowing wool Supafil® is a good example of this. It is also fitted by Approved Supafil® Installers, who have the necessary training and experience to deliver a high-quality installation.

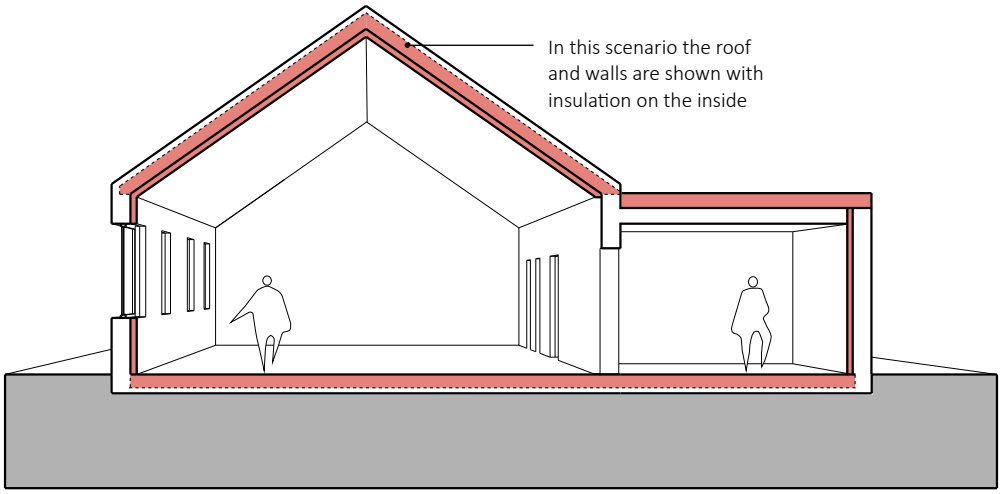
Floor insulation

If the floor is solid and bearing directly on the ground it can be difficult to install insulation without affecting the floor level. As heat loss through a solid floor is relatively low compared to heat loss through the walls and the roof, it is unlikely that the cost and effort of installing floor insulation will outweigh the thermal benefit in this scenario. If the floor is a suspended timber floor however, then it is worth considering having this lifted and placing insulation between the floor joists before re-laying the floor, as this will also help to reduce draughts.

If you decide to change the flooring then consult ACRE's Information Sheet 31 which is available through ACRE's members.



Mineral wool insulation installed between the floor joists of a suspended timber floor.



Floor insulation completes the insulated envelope, but may only be feasible with a suspended floor

KNAUF INSULATION

Getting the performance you've paid for

A key benefit of mineral wool is that it's easier to install correctly than some other types of insulation. Rigid board insulation for example, won't sit flush against a wall's inner leaf unless it's perfectly uniform and flat. This can lead to unintentional air gaps and reduced thermal performance.

The flexibility of mineral wool insulation allows it to adapt to minor imperfections in the cavity wall, maintaining close contact. The strands also 'knit' together where individual rolls or slabs meet, minimising gaps and maximising thermal performance.

It's also important to consider the fire safety credentials of the products you choose. All Knauf Insulation's glass mineral wool products and rock mineral wool slabs achieve a Euroclass A1 or A2-s1,d0 reaction to fire classification.

Download Knauf Insulation's Solutions Guide to learn about the full product range.

Which products should you choose?

There are many benefits to a well-insulated village hall – less energy is wasted, running costs are reduced, and the space becomes more comfortable to use throughout the year. But to truly realise those benefits it's important to choose the right products for the job.

The correct products for your project will depend on a variety of factors. Please seek technical advice on the right product for your specific application before specifying.

All of these products are non-combustible with the best possible Euroclass A1 reaction to fire classification. The glass mineral wool products and Rocksilk® Flexible Slab are also manufactured using Knauf Insulation's unique bio-based binder, ECOSE® Technology that contains no added formaldehyde or phenol. The binder is made from natural raw materials that are rapidly renewable and is 70% less energy-intensive to manufacture than traditional binders. ECOSE® Technology makes the insulation soft to touch and easy to handle.

Roof Insulation

Pitched roof insulated at ceiling level

Loft Roll 44 is a glass mineral wool roll, designed for insulating cold pitched roofs at ceiling level. It offers thermal conductivity of 0.044 W/mK.

- Euroclass A1 reaction to fire classification.
- Available combi-cut, ready-cut, or uncut, and in long or short lengths, to maximise on-site efficiency.
- Compression packed and lightweight for easy handling.

Learn more here

Pitched roof insulated at rafter level

Rafter Roll 32 is a glass mineral wool roll, designed for use in warm roofs for insulating the rafters. It offers the best thermal conductivity of 0.032 W/mK in Knauf Insulation's range.

- Euroclass A1 reaction to fire classification.
- Manufactured for cutting at varying centre dimensions, for maximum flexibility.
- Reduces unwanted external noise like traffic or rainfall on the roof.

Learn more here

Flat Roof

Rocksilk® Flat Roof Slab is a rock mineral wool slab with an Agrément certificate by the BBA, designed for use in mechanically-fixed flat roof build-ups onto all types of roof deck.

- Euroclass A1 reaction to fire classification.
- Knauf Insulation's Krimpact® Technology provides high levels of compressive strength and durability.
- Manufactured with a water-repellent additive to resist moisture ingress.

Learn more here

Wall Insulation

External wall insulation

Rocksilk® EWI Slab is a rock mineral wool slab designed for use in external wall insulation systems. Slabs can be either adhered and mechanically fixed or just mechanically fixed to the substrate. The reaction to fire performance of the product removes the need for fire barriers, giving simple, quick and economical insulation for External Wall Insulation systems.

- Euroclass A1 reaction to fire classification.
- Suitable for use with both silicone and mineral render systems.
- Suitable for applications where higher load-bearing is required.

Learn more here

Cavity wall insulation

When retrofitting cavity wall insulation, the best solution will depend on the amount and type of insulation currently being used within the cavity. Please seek technical advice for your specific application.

Floor Insulation

Floor insulation between joists

OmniFit® Slab 35 – multiple applications

OmniFit® Slab 35 is a glass mineral wool slab, designed for use in multiple applications in both timber and steel frame construction. It offers thermal conductivity of 0.035 W/mK, combined with acoustic performance.

- Euroclass A1 reaction to fire classification.
- Designed to friction fit between studs, preventing air movement and infiltration around the edges.
- Compression packed with more product p/pallet than alternative rock mineral wool products.

Learn more here

Rocksilk® Flexible Slab – multiple applications

Rocksilk® Flexible Slab is a rock mineral wool slab, designed for use in multiple thermal and acoustic applications.

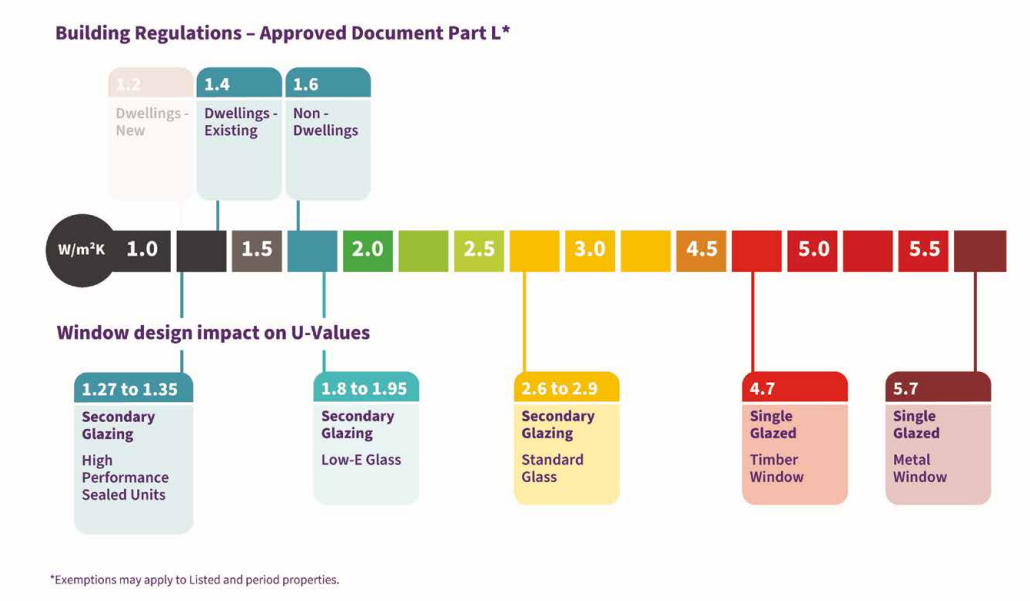
- Euroclass A1 reaction to fire classification.
- Manufactured using ECOSE® Technology.
- Engineered to adapt to minor imperfections in the substrate.

Learn more here

Download Knauf Insulation's Solutions Guide to learn about the full product range.

WINDOWS AND DOORS

Poor quality and poorly installed doors and windows are often a large source of heat loss and replacing or improving these should be a top priority when upgrading the building fabric. If single-glazing is currently installed, then the windows should be replaced with either double or triple-glazing. In situations where the building is historic or listed or the existing windows should be retained, then improve them by draught-stripping if possible, and install secondary glazing.



The u-values (thermal performance) of different types of glazing. The lower the number the better the performance.
Triple-glazing can achieve u-values of around 1.0, while double-glazing will be nearer to 1.6.
Single-glazing can have a u-value of 5 or 6 but with secondary glazing this can be improved to 1.8.
U-values diagram is courtesy of Selectaglaze.

Product selection

There are many types of window on the market and too many for us to advise on in this guidance. Despite claims from the PVC industry that the material is now more environmentally friendly and more durable, we would generally look towards either good quality timber-frame windows or composite windows which are mostly timber but with an aluminium capping on the outside offering additional durability.

Windows perform many functions and are subject to the use and sometimes abuse of hall users so need to be robust and durable if they are to last a long time. For this reason we would advise getting the best you can afford, and while you might be able to reduce the price with some negotiation don't be tempted to compromise on the quality.

We would also advise that all new windows come with trickle ventilators which are small vents built into the window which can be opened and closed to provide background ventilation as required. Clear solar-reflective glass with a G-value of 0.4 or less can also be requested for windows that face south or west and which may be a cause of overheating in summer.

Air-tightness

It's important to make the building sufficiently air-tight in order to reduce uncontrolled heat loss. A difficulty in achieving very high levels of air-tightness with village halls is that often large numbers of people are regularly entering and exiting the building and in doing so heat is lost each time the doors are opened. In practice there is therefore a limit to the level of air-tightness than can be achieved.

To reduce the impact of users on air-tightness it is a good idea to create a large entrance lobby with good quality doors on both sides. The key is to try to limit uncontrolled heat loss through gaps in the fabric such as chimneys and accept that while there will be some heat lost through openable windows and doors, this is at least mitigated and controllable.

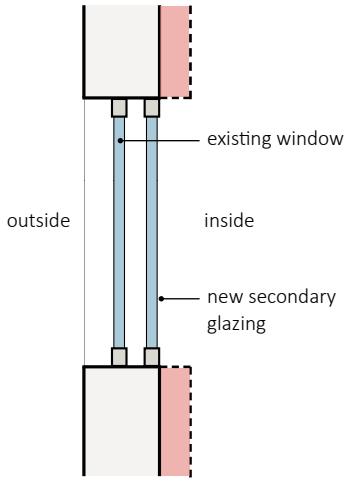
Installation quality

The quality of the installation is as important as the window or door, and even double-glazed units can result in a lot of heat lost through the surround if they are poorly installed. It is important that the windows are installed so that they are in line with the insulation.

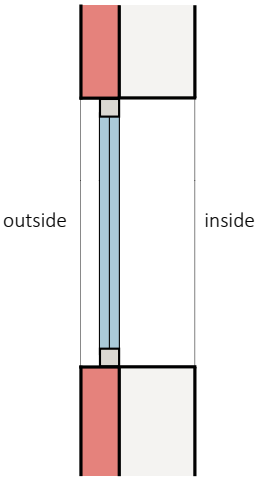
A three-level installation system is ideal. This will be 100% air-tight and vapour-resistant on the inside, provide thermal and sound resistance in the centre, and provide more than 750 Pa resistance to driving rain on the outside. Unfortunately, many UK installers often still want to use only a single bead of mastic around the window which is insufficient and undermines the performance of the high-quality windows. A good product is made by Iso-Chemie and further details are available on this link. Refer your window installer to it if they tell you they only need to use mastic.

Wood-fibre board insulation fixed internally and turned into the reveals to meet the window frame at Skelton Toppin Memorial Hall.

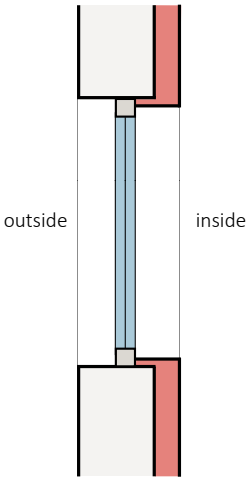
Diagrams to show the location of windows in line with the insulation to ensure thermal continuity



Where the existing window can't be moved or replaced, secondary glazing can be added to the inside face, either in combination with internal wall insulation (shown dashed) or not.



Optimal window position with external wall insulation (shown red)

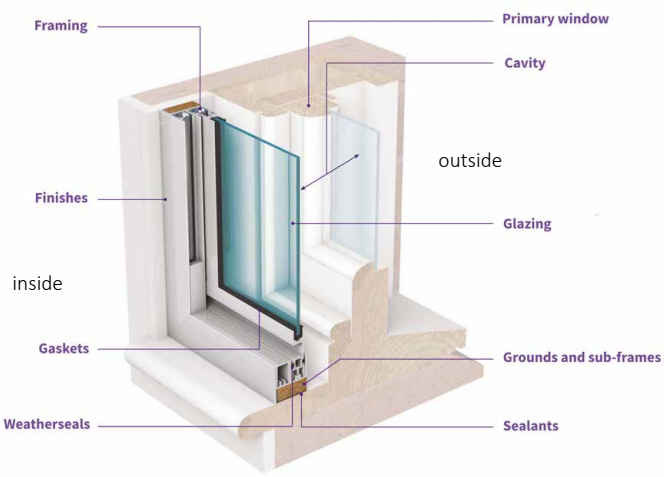


Optimal window position with internal wall insulation (shown red) which turns into the reveals and joins the window

Secondary glazing

There will be situations in which you will not want to replace the existing windows. Perhaps this is because the building is historic and has listed status or perhaps the existing windows are particularly attractive. There may also be situations where the existing windows are not so bad that you can justify replacing them, but you would still like to improve their performance. In these situations the installation of secondary glazing provides an ideal solution.

The existing windows are retained and new secondary glazing is installed in the window reveal inside the existing window. There are various styles, types and methods of opening which are described in further detail by Selectaglaze, on the following pages.



Secondary glazing diagram, courtesy of Selectaglaze

selectaglaze
PRECISION BESPOKE SECONDARY GLAZING

Selectaglaze offers the most comprehensive selection of secondary glazing to allow the design of sympathetic treatments for any style of windows and interior aesthetic. The company manufactures 21 product ranges with thousands of customisable options to choose from.

Window reveals are rarely square so to achieve a precisely crafted installation and avoid unsightly trims and excessive sealant, Selectaglaze creates timber fixing grounds and sub-frames. Selectaglaze's experienced installation teams ensure impeccable fit and functionality. Click here for more info.

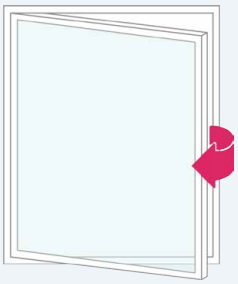
There are five main styles of secondary glazing:

By retrofitting secondary glazing, thermal performance is raised, noise significantly reduced, and buildings become more sustainable. If standard glass is selected, heat loss can be reduced by half and by using low-E glass the reduction becomes 65%. By augmenting the specification to high performance sealed units, the reduction could reach 75%.

Click here to find out more about secondary glazing and bust some old-fashioned myths.

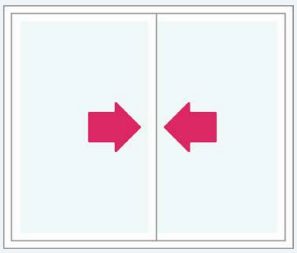
Casement

Hinged casements allow for neat and unobtrusive treatments with a single pane to avoid mullion or transom lines and offer full and easy access to the outer window. When considering casements think how bulkheads will affect design and how window treatments such as curtains and blinds can be set to allow opening clearance.



Horizontal Sliding

Horizontal sliding units provide easy access for ventilation and cleaning. Sashes slide within the frames avoiding conflict with bulkheads, curtains or blinds and are removable for maintenance.

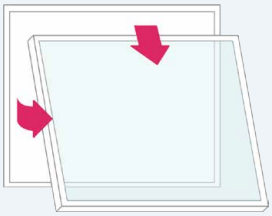


Fixed

Fixed lights tend to be used in combination with other styles to form over lights or side lights and are particularly useful in designs for treatment of complex arched and shaped windows.

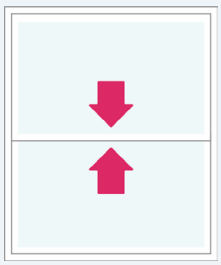
Lift-out

Lift-out units provide a neat solution for windows which are rarely opened but require occasional cleaning or maintenance.



Vertical Sliding

Vertical sliding units are ideal for treating sash windows as they follow the existing sightlines. Spring balances support the weight of the sashes which contra-slide to help with access for cleaning.




TRENT
MEMORIAL HALL

CLEAN ENERGY

Having reduced energy demand by insulating the building, the next logical improvement you can make is to ensure the energy you are using is from clean sources of production. In the UK, most village halls are connected to the electrical grid, with heating generally provided by either mains gas (41% according to ACRE's 2020 survey), or oil or LPG (21%). An important part of going green involves moving away from fossil fuels, such as oil and gas, and moving towards cleaner and renewable energy sources.

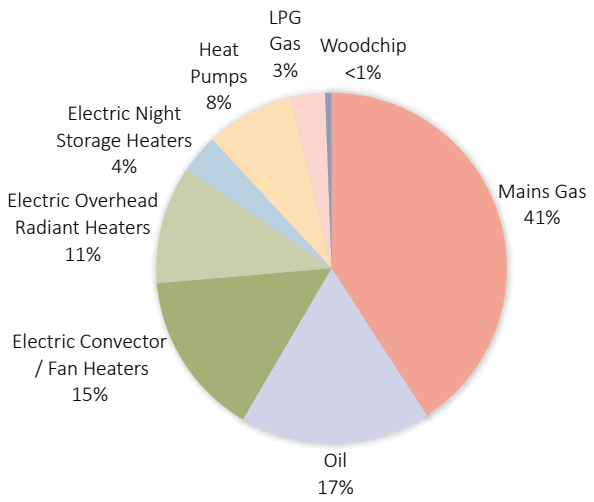
Of the case study projects four had managed to move from their old fuel source to entirely electric systems. For example at Haddenham an ancient 115kW gas boiler was replaced with a 36kW air source heat pump, while at Skelton a 50kW oil-fired boiler was replaced with infrared heating panels. The halls at Otterhampton and Hewish & Puxton still retained oil as their fuel source, but having insulated their buildings they are well-positioned to make the switch in the future.

Community energy networks

It is worth considering whether your village hall could form part of a Community Energy Network. This might see the hall teaming up with other local facilities such as a church or school and finding ways to deliver energy of mutual benefit locally. This is an emerging movement and as architects we have limited knowledge of it, but further information is available at;

www.communityenergyengland.org.

We would recommend that some research is undertaken to explore opportunities at an early stage.



Fuel sources as revealed in ACREs 2020 Village Hall Survey

Moving the village hall onto a 100% electric system is a good start, but if you are committed to going green, it's also important to look at where the electricity is coming from and how it is being generated.

There are many operators claiming to offer greener tariffs but it is not always entirely clear how this works. Thankfully our sponsor partner Utility Aid can help with this.

Energy prices

It could reasonably be assumed that by using less energy the bills will be lower, but it is not quite as straightforward as this, and it's important to explain why.

In terms of energy use, improving insulation will reduce the actual kilowatt hour use per year- for the sake of this example let's say by 50% of the original figure. But does that mean the bills will also be 50% lower? The answer is 'probably not', and that's because electricity, gas and oil all have different costs per kWh, and typically standard tariff electricity is the most expensive. This means that if you were to switch from gas to electric, the 50% reduction in energy used will not directly translate into a 50% reduction on your bill.

There are however factors in favour of electric heating systems that help mitigate this. Heat pumps for example have an efficiency over the course of a year of around 300%, which means that on average, for every 1kW put into the system, 3kW comes out- so effectively this is a form of energy generation. Furthermore, electricity generated by solar panels can be directly used to power the heating, which would be impossible with a traditional gas or oil-fired heating system.

The case study participants we spoke to recognised these contradictions and the fact that reducing energy consumption doesn't always result in far lower costs. Instead, they emphasised other benefits of their projects such as knowing they were helping the environment by using electricity from clean and renewable sources. As one committee member put it;

"the hall only costs a bit less to run now than it used to, but the difference is that it's warm and usable now whereas before it was always cold".

Utility Aid offers a range of services to all sizes of village halls and community buildings, such as Invoice Validation, Net Zero, and Carbon Reporting, which can save you valuable time.

Support

Our experts check you're not being overcharged by your current supplier, offer honest advice on the current energy markets, and can help you plan for changes in energy charges and how they may affect your budget, in the short and longer term.

Procurement

Bespoke quotations based on accurate information. Our services are tailored to your buildings, budget, and vision as an organisation.

Net Zero & Carbon Reporting

Our in-house assessors can support your organisation with making strategic decisions on investment to reduce energy use.

- Determine the potential for microgeneration across the estate and the impact on Carbon.
- Set building energy targets and reduce the performance gap.
- Decide on a timeline of improvement measures to align with maintenance/ improvement budgets.
- Display Energy Certificate (DEC).
- Energy Use Investigation.
- Smart Export Guarantee (SEG).

Remote Discovery Document

Our Remote Discovery Document is a cost-effective report that allows organisations to make educated decisions on the implementation of energy-efficient measures that can help reduce energy consumption. The document includes the impact all technology/measures will have on energy consumption, the potential cost to install, and the expected return on investment.

Invoice Validation

Our team of skilled analysts conduct thorough checks on invoices to ensure you are billed correctly and there are no overcharges. We automatically investigate any issues and liaise with suppliers to get mistakes rectified.

You can be assured that you will be in safe hands with our team of customer-focused experts. We were awarded the Best Customer Service Large Customers 2023 (The Energy Live Consultancy Awards) and TPI of the Year 2023 (The Energy Awards).

"I was contacted by William Cormack regarding our Village Hall energy bills. He made comparisons and although I missed the deadline for a decision, he got back to me and set up an up-to-date comparison.

We have gone ahead with the change in suppliers and I believe it will result in significant savings. I am grateful for Will's expertise, patience and persistence."

David Hertfordshire,
Allen's Green Village Hall.

"It's an honour to work in partnership with the ACRE Network. We understand the importance of Village Halls and Community Buildings and the extensive economic and social benefits they bring.

Utility Aid will always support rural Community Buildings to become greener and save time and money on their energy provision."

Emily Berry, Utility Aid.

"Our Charity has used the services of Utility Aid over several years - energy brokerage and solving problems with suppliers - and found them unfailingly helpful.

Most recently, we have used their Remote Building Assessment to obtain guidance on how we might reduce the energy consumption of our very old building.

After a tour of our building via video link with an energy assessor, we received a comprehensive report on what improvements, large and small, we could make and their suitability, which was followed by a discussion with the assessor.

I have learned so much from this process. With the support of the report feel much better equipped to work with my fellow Trustees to reduce the carbon footprint of our Village Hall."

Jane Lutman,
Flamstead Village Hall.

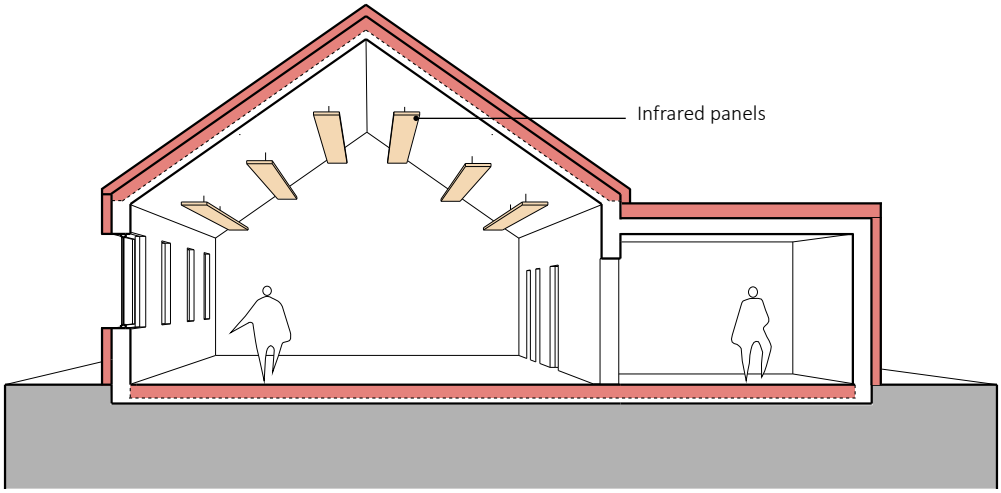
Get in touch with our Partnerships Manager, Emily Berry, to find out more.

M: 07913 519358 T: 0808 178 2021 E: eberry@utility-aid.com

HEATING SYSTEMS

In the past, using electricity to heat buildings was an expensive business with technologies such as storage heaters, which relied on night tariffs, gaining a reputation for poor performance. However, technology has moved on and today there are two main ways to heat a village hall using electricity at reasonable cost. As detailed below, both are good systems and suitable for different applications. Ultimately it will be for village hall management committees to decide which is the most suitable system for them, taking into consideration advice from professional advisers.

Village halls are quite a distinct typology and usually have one large main hall with a pitched roof and a high ceiling, and a series of smaller ancillary rooms such as a kitchen, meeting room, lobby and toilets. The smaller rooms are relatively easy to address but the main hall is a special issue due both to its size, as well as the intermittent and varied nature of its use. Some halls may be used for one activity per day whilst others may host back-to-back groups and activities throughout the week, many with different room temperature preferences. In our view, the size of the hall and the nature of its use are two important considerations when deciding which heating system to choose.



Example village hall now insulated, with infrared panels suspended from the ceiling

Electric infrared heating systems

Infrared heating works by gently radiating heat to warm people, furniture and the fabric of the building. It is the same warming effect as sunlight through the windows. The heaters are mounted on the ceiling, suspended from the ceiling or mounted higher up on walls. Infrared heaters can be used to directly heat people when in use, or if run for longer periods of time can heat the whole building.

This differs from convection heating (radiators or underfloor) which needs to heat the entire volume of air and requires more energy to heat the whole space. This is especially a problem in halls with high ceilings (warm air rises to the ceiling void where you don't want it) and in less well-insulated buildings.

For halls with high ceilings, suspending the infrared heaters lower will improve the effectiveness of infrared heating systems as the heaters can provide a quick warm-up time and can often be used without the need for much pre-heating of the hall.

Infrared heating has many advantages in that it is easy to install, highly controllable, has no maintenance requirement, and is mounted out of reach of people. Infrared heating systems can be installed in both insulated and uninsulated spaces, although running costs will be lower and comfort levels higher in insulated spaces.

Unlike older style "quartz" heaters, modern infrared space heaters are usually zero-light and completely silent in operation. For more enclosed rooms such as kitchens and WCs infrared heaters are available as slimline white panels and mirrors.

Infrared heating can be combined with solar, battery and smart renewable energy tariffs for net zero heating. It can be a compelling alternative to heat pumps and has the advantage that there are no specialist skills required for installation, no ongoing maintenance, no risk of there being no heating in the event of a system failure, and none of the typical problems sometimes associated with wet systems such as leaks.

HERSCHEL infrared heaters

What is Infrared Heating?

Infrared heating is radiant heating, the oldest heating known to man and the same feeling of warmth as the heat from a coal fire or log burner.

Benefits of Infrared Heating

Infrared heating is a very practical and affordable way to decarbonise heating of village halls, especially for those not in constant use where 24/7 heating is not required. It is also perfectly possible to run our infrared heating systems in poorly insulated and older buildings.

Delivering fast warm-up times, infrared heaters are suitable for all environments and are available in a choice of space-saving and discreet designs. They contain no hazardous components, are highly recyclable and offer a practical and affordable alternative to other electric heating systems. Infrared heating can be powered alongside renewables or a green energy tariff to deliver a lower carbon footprint.

100% safe and natural (our human bodies are designed to accept and emit infrared) infrared heating is a very comfortable, non stuffy form of heating and one of the benefits people often enjoy most.

Market Leader

Herschel Infrared is the UK market leader in infrared heating solutions with global distribution. With electric heating solutions for all applications including residential, commercial, industrial and heritage markets, we have the broadest range on the market.

UK Production

2023 saw the opening of our state of the art UK Production Facility in Bristol. This step marks our continued commitment to increasing capacity of our energy efficient, comfortable and sustainable heating solutions to meet the growing demand from both UK and overseas markets.

"I got in contact with the team from Herschel and the solution seemed to be the right solution for us"
Henbury Village Hall

Specification Expertise

Our dedicated team is focused on providing tailored heating solutions for all environments. With significant experience in heating village halls, heritage buildings and hard to heat spaces, we have worked closely on providing effective heating solutions for The Church of England, English Heritage and the National Trust that fit the required aesthetic whilst minimising energy consumption.

Independent analysis from a church installation is available here.

We will work to understand how often the village hall is used, whether the space is used full time or on an ad-hoc basis, and how best to control the heating solution for the users.

Heaters and Controls for all Requirements

Offering a combination of more powerful space heaters (including our Horizon, Power, Aspect XL, Summit & Colorado heaters) for heating larger, open hall spaces, as well as panel heaters for rooms including kitchens and toilets, we can provide a whole heating solution as well as a modular solution for individual areas.

We offer a full range of control options from simple on-site controllers to smart App-enabled controls, tailored to suit the operational requirements of the hall. In addition, we offer custom-built control systems that can be combined with solar and overnight tariffs to ensure energy requirements are efficiently managed and minimised.

> *"All the groups who hire the Marshall Hall are very happy now they have heating that keeps them warm especially the stroke association who used to bring hot water bottles.*
>
> *I would definitely recommend Herschel as a company as they have always been helpful with regard to any question asked, and the units installed certainly do the job they were designed for."*
>
> Norton Fitzwarren Village Hall

Future Proof Solutions

We recommend allocating more of your available budget to reducing the heat loss of buildings and consider investing in on-site renewables and battery storage.

We often find that for the same price as a heat pump system, village halls can have an infrared system and a solar PV and battery system. With this combination and clever management alongside night-time tariffs, village halls can balance usage to future proof costs and deliver a sustainable future. It may even be possible to achieve very low or zero running costs.

Discover the full product range and contact us for a free, no obligation quote at our website www.herschel-infrared.co.uk

HEATING SYSTEMS

Heat pumps : an introduction

There are two main types of heat pumps; air source heat pumps (ASHP) and ground source heat pumps (GSHP). There are also water source heat pumps but these are much less common as they require a large body of water such as a nearby lake, pond or river.

Ground source systems require either deep boreholes or a large outside area such as a field, in which a loop can be installed beneath the surface. The hall we visited at Hurst Green had done this, with local farmers helping to excavate the field. This type of heat pump system utilises the heat in the ground which is broadly steady throughout the year.

Air source systems are similar but instead of taking heat from the ground they use the ambient heat in the air. They are generally cheaper to install than GSHPs and only need a suitable external area for condensing units. With both systems, it is important that the building is well-insulated.

What is an air-source heat pump (ASHP)?

Put simply, an ASHP is a device which moves thermal energy from one place to another. Domestic fridges use the same technology in reverse, as they cool rather than heat.

ASHPs are similar to traditional heating systems; a unit generates heat which is then distributed through a property via pipework and radiators.

Unlike their boiler counterparts which burn gas or oil to create warmth, ASHPs use energy available from the outside air to heat up water. As such, they are considered more environmentally friendly as they don't burn fossil fuels and are considered low-carbon technology.

All heat pumps benefit from a co-efficient of performance (COP) which means that over the course of a year for every 1kW of electricity used to run the pump approximately 3kW is generated. Efficiency is higher in summer than winter because the ambient air is warmer, and the exact COP achieved will vary over the year.

ACRE's survey conducted in 2020 revealed that 8% of village halls have already installed a heat pump, with a further 6% planning to do so.

The 2020 figures show a ten-fold increase in installations from 10-years previously, and government funding to further de-carbonise properties has significantly ramped up demand in recent years.

Space heating and hot water for village halls

Careful research is needed before deciding whether an ASHP would be suitable for your village hall. That's why a full survey is essential to work out what kind of fabric the building is made of and how much heating is required. This can be carried out by a specialist heat pump installer or consultant who can work out the peak heat loss and budget for the project.

The survey will identify if the building requires any insulation upgrades prior to fitting an ASHP. This will be more common in older properties as building standards have vastly improved in recent years. There are various funding schemes for encouraging the switch to ASHPs- they often recommend upgrading the fabric of the building first to stop heat escaping.

ASHPs tend to operate at lower flow temperatures than traditional fossil-fuel boilers. For example, if a typical gas boiler operates at a flow temperature of between 60°C- 80°C, an ASHP will tend to operate more efficiently between 40°C - 55°C. This means that radiators and other heat emitters may need to be larger in order to transfer the equivalent heat energy into a space compared with a boiler system.

ASHPs therefore fit perfectly with underfloor heating due to the lower flow temperatures and can work well with convector radiators and other heat emitters such as radiant panels.

Air-to-water (monobloc) and air-to-air (air conditioning) systems

This guidance concerns air-to-water systems, in which hot water is distributed around the building in pipes, similar to traditional central heating. There are also air-to-air systems which distribute hot air through ducts and vents, but these are basically a simple form of air conditioning, and are not as environmentally friendly.

In a monobloc air-to-water system the refrigerant is completely contained within the outdoor unit so there is no requirement for handling or distributing refrigerant, or the associated maintenance and pressurisation issues. In an air conditioning system however there is more refrigerant which runs in pipework inside the building, and this can be prone to leakage which is harmful to the environment as it has a high global warming potential.

To qualify for many grants an air-to-water system is often a requirement, so we would usually advise selecting a water-based system and our guidance is based on this.

The diagram below shows a typical ASHP system

- ASHP is floor mounted outside the property. It requires plenty of space around it to encourage better airflow and efficiency.
- The indoor cylinder stores hot water for showers, washing up etc. and is sized to suit the use of the building and maximum number of occupants.
- Popular heat emitters include underfloor heating, radiators and radiant panels connected to hot water pipework.

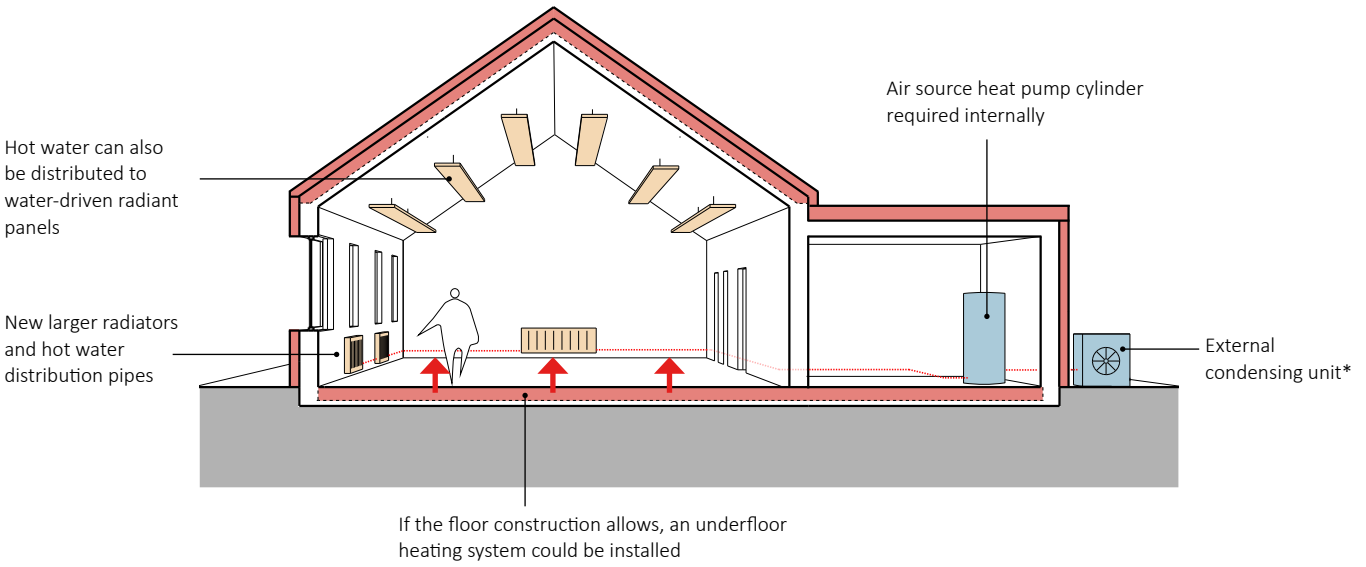
Hot water heating

GSHPs and air-to-water ASHPs have the added benefit of being able to heat hot water which can be stored in a large cylinder ready for use, similar to those used in domestic settings where hot water is regularly required for showers etc.

The hot water demand in a village hall is generally much lower however and typically only needed for hand washing in the toilets and kitchen. In view of this, it may be more efficient to install electric instantaneous water heaters which provide a supply of hot water on demand.

Whilst instantaneous water heaters can provide a steady supply, they are rather power hungry as they use direct electricity, so we recommend installing taps with sensors or push-button timers so they can't be accidentally left on for long periods which could be expensive.

If your village hall has a need for greater volumes of hot water however, for example if it has shower facilities, then it will probably be more efficient to use the heat pump to supply this via a storage cylinder due to the efficiency benefits.



*An external condensing unit is only needed with an ASHP. If a GSHP is installed the pipes will instead run into the ground through boreholes or a shallow loop system

Example village hall post-installation work, with an air-source heat pump installed. Three methods of emitting the heat are shown but not all are required.

BAXI

For a heat pump to be efficient throughout the year it's important that it is designed correctly to suit your village hall. BAXI recommend you consider the points below when making this decision.

Recommended checklist to assess if an ASHP is suitable:

- Is the property sufficiently insulated to prevent leakage of heat?
- Does the property have outside space to fit an ASHP?
- Is there sufficient electrical power supply to run an ASHP instead of using a fossil fuel?
- Are the current heat emitters suitable to run at a lower temperature? (Your installer will advise on this.)
- Do you have details on how the property is to be used, by whom and at what times?
- Do you have government funding available to use?

As more people are installing heat pumps so the technology is becoming better known and understood. At the moment it is still quite a new technology to a lot of people and a few myths and misunderstandings have arisen which are worth addressing.

Myth 1: Heat pumps don't work in the cold.

This is incorrect. Most heat pumps will operate in temperatures as low as-20°C. They have been used for years throughout the Nordic countries which are far colder than the UK and they're a great sustainable alternative to gas fired boilers. They operate efficiently in cold climates provided they are sized correctly.

Myth 2: You can't retrofit heat pumps in existing buildings.

This is incorrect. Heat pumps can work perfectly well in existing properties provided the building's insulation has been upgraded to modern standards.

Myth 3: Heat pumps cost more to run and increase your energy bills.

This ultimately depends on price of gas vs electricity from your supplier. Several energy suppliers incentivise users to switch to the use of ASHPs. Although the current cost of a unit of electricity is more than a unit of gas, a heat pump can be up to 400% efficient so the equivalent running cost should be similar.

Myth 4: Heat pumps only work with underfloor heating.

This is false. Heat pumps can work with a variety of heat emitters such as convector radiators and radiant panels to suit your buildings requirements.

Myth 5: Heat pumps devalue properties.

Incorrect! By upgrading the fabric and installing a heat pump, you can increase the value of a property whilst upgrading its energy performance rating.

Myth 6: Heat pumps aren't affordable.

Although the initial cost of a heat pump system is higher than that of a boiler, there are numerous government schemes introduced across the UK to encourage the uptake of heat pump technology.

Myth 7: Heat pumps don't warm up quickly.

Heat pumps are best run continuously at lower temperatures to maintain a building's steady comfort levels. New adopters will benefit from proper education and guidance on how to operate a 'low and slow' philosophy rather than expect instantaneous heat at the flick of a switch.

Myth 8: Heat pumps are noisy.

Whilst heat pumps do make a low hum, technological advancements mean they are far quieter than they used to be. Sound calculations are part of the full design process to make sure neighbours won't be disturbed.

How do ASHPs work?

An ASHP is a sealed unit that sits outside your property. It contains a fluid called refrigerant which boils and condenses at really low temperatures (Below 0°C).

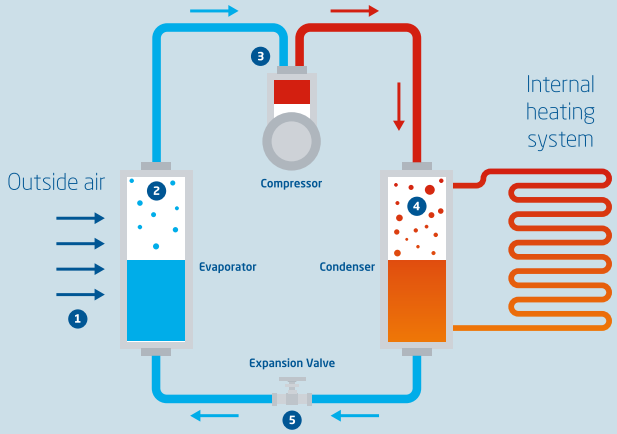
1- A fan sucks in air from the outside, through a metal coil called the evaporator.

2- The energy from the air heats the refrigerant in the system, which evaporates into a vapour.

3- This vapour is then squeezed and compressed and its temperature and pressure rise.

4- The high temperature refrigerant passes through the condenser which transfers heat into the property's heating and hot water pipework via a heat exchanger.

5- The expansion valve reduces the refrigerant's pressure back down, ready to start the cycle again.



How Baxi can help you

Baxi are a heritage brand with over 150 years of experience in providing heating and hot water solutions to a variety of residential and commercial customers. Our dedicated team are here to support you in the design and selection of optimum solutions to suit every building type. Village halls can cover a wealth of different applications and uses. It's important we fully understand how the building will be used and who will use it, to ensure we guide you to the right solution.

With the move towards the government's net zero goals, electrically driven ASHPs remove the need for fossil fuels such as oil and gas. This will lead to an environmentally conscious design with a lower global warming potential.

If you are considering making a switch to an ASHP, we will connect you with a local specialist installer or designer to help you plan and calculate a budget. This will involve a physical visit to your property and discussion with you as to usage patterns, number of occupants and future requirements. A Baxi Heat Pump Installer will identify if your property is suitable for an ASHP. They will provide you with a full design and budget to supply, install and commission the new heating system.

All heating systems benefit from an annual service to ensure it is operating at peak efficiency. Service contracts can be provided by either the initial installer or via Baxi direct. Baxi have a nationwide network of specialist engineers to offer additional site support when required or in the unlikely event that a problem occurs. By being there throughout the journey, we can make sure every system delivers on efficiency, comfort and reliability.

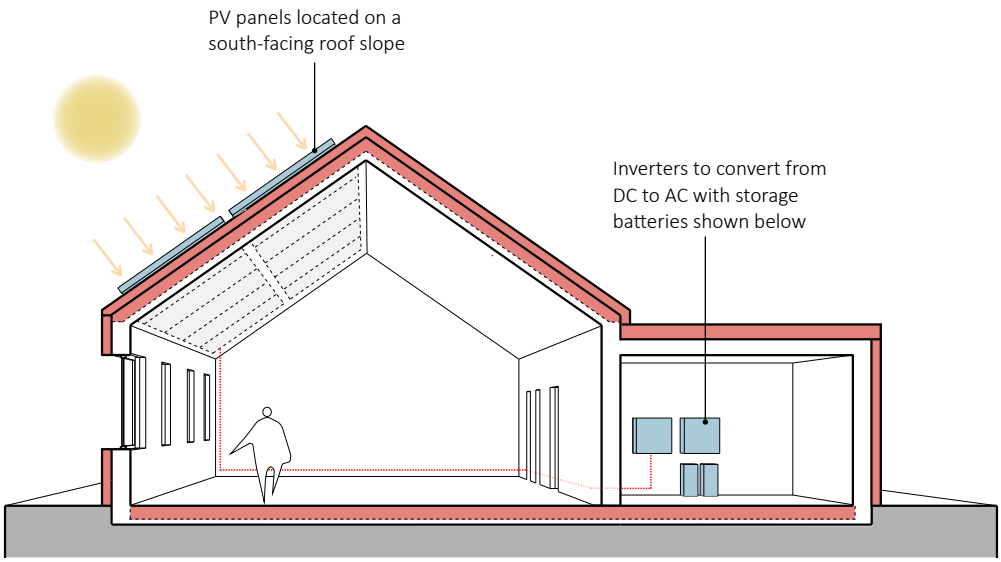
Click here to find out more at our website.

SOLAR PHOTOVOLTAIC (PV) SYSTEMS

Once you have found a solution for reducing your energy consumption, then transferred to a clean and renewable electricity supplier, you may want to consider generating your own energy to further reduce your bills.

Village halls offer an ideal opportunity for installing PV panels as they tend to have large sloping roofs. Ideally one side of the roof should face due south, but anywhere between south-east and south-west is also effective. You will need to consider the orientation of your building and seek advice from an installer.

Where panels are installed on a roof, advice from a structural engineer should also be sought to ensure that the roof is capable of taking the additional weight. If the engineer concludes that it is not adequate, then consider installing an integrated or 'in-line' PV system which involves removing the roof tiles or slates where the panels sit. These have the advantage of not allowing birds to nest underneath, reduce the risk of wind uplift, and are also visually attractive. This may be a better solution than reinforcing the roof and was the type of system installed at Skelton Toppin Memorial Hall.



ACRE's survey of 2020 revealed that 13% of village halls have already installed PV panels, with a further 8% planning to – a tenfold increase over the preceding decade demonstrating increasing use of this technology.

Case study projects

Of the halls we visited that had installed PV systems, everyone we spoke to was very pleased with their performance. PV panels work well in tandem with electric heating systems including both infrared heating and heat pumps, as on bright cold winter days the electricity generated can feed directly into the heating system. They also work well where additional supply to electric vehicle (EV) charging points is required. This is good as the village hall will usually be paid at a standard rate for the electricity which the hall will be generating for free, hence the hall makes a profit. In summer, when a high amount of electricity is being generated and may not be used by the heating system, EV charging points are a great outlet for this electricity. Where excess is still generated this can either charge batteries or be exported back to the grid for a usually quite small reimbursement.

Of the case study projects, PV panels were installed at Haddenham, Skelton, and Otterhampton.

- At Skelton in Cumbria, 60 panels were installed providing up to 19.5kw despite the hall being in a conservation area.
- At Haddenham a 48-panel system providing up to around 15.6kw was installed.
- At Otterhampton a smaller system of 30 panels providing up to around 9.75kw was installed, each panel generating up to around 325 watts.

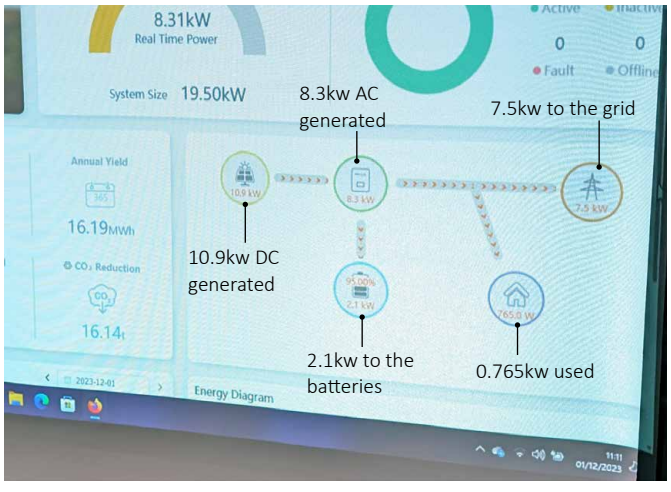
Be aware that the specified size of a system is the maximum theoretical output and for most of the year this will not be achieved.

The system at Skelton Toppin Memorial Hall, Cumbria

At Skelton, in Cumbria, the committee have accumulated some good data on the energy generated by their solar panels. The 19.5kw system generated 17,500 kWh (kilowatt hours) in one year, with up to 130kWh being generated on a single day in summer. Assuming one kWh of electricity cost 30p, this equates to £5,250 over the year.

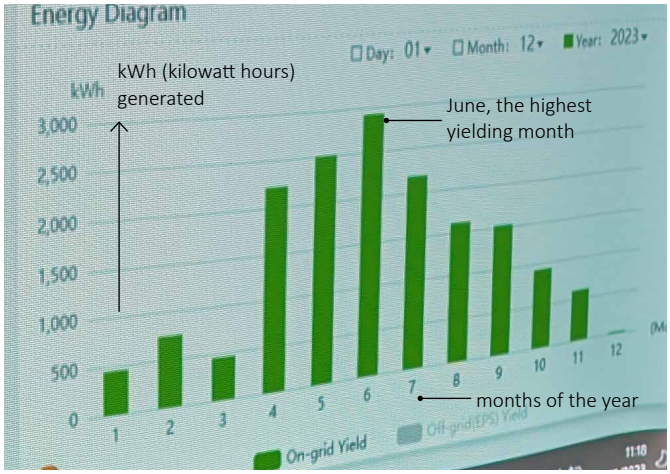
However, not all the energy will have been used, and some will have been exported back to the grid (typical feedback rates are 5p per kWh, although some better rates are now available). If half of the electricity generated by the panels was exported to the grid, this would equate to a saving of about £3,063 per year. The more electricity the village hall uses rather than feeding back into the grid, the higher the saving will be. This is why heat pumps, infrared heating, and car chargers, all work very well alongside PV panels.

Of course, a key consideration is the variability of energy generation throughout the year. We visited Skelton on a cold but bright December day, when the sun was very low. The real-time readings can be seen on the photo below, and at 11am, from a 19.5kw system, 8.31kw was being generated. Of this, 2.1kw was being used to charge the batteries (which were 95% full) and 7.5kw was being exported to the grid, with less than 1kw being used.



All the energy generated by the PV system is displayed on an app in real-time

The chart below shows the electricity generated by the panels for each of the twelve months of 2023, June being the best month with almost 3,000kWh generated, and the lowest being January and March (excluding December as the figure shown is for only one day). The difference in electricity generated by the panels across the year is very apparent, with the summer months producing around five times the amount in winter.



All the energy generated is also recorded by the app and so the system's performance throughout the year can be analysed

Naturally, this seasonal variability isn't ideal as most energy use occurs in winter when all of the energy generated can expect to be consumed, whilst surplus will be generated in the summer. For maximum financial benefit it is good therefore to have another use in summer and for this reason EV charging points work very well in tandem with a PV system. If an average electric car uses approximately 12 kWh per day and on a good day in summer up to 130 kWh can be generated, it is clear that the system could be used to partially charge many cars over the course of the day.

Other renewable energy sources

PV is not the only form of renewable energy and alternatives include wind turbines, water turbines, and biomass. Care needs to be taken if any of these are being considered however, as the conditions in which they work effectively are geographically specific, and may have limited results when employed on a small scale.

ACRE's survey of 2020 found that only 4 halls from a sample of over 2,000 had installed a wind turbine, compared with 246 that had installed PV panels. However, if the conditions are right, and for example your hall is near a river, then a water turbine may be viable, so think about the potential energy-generating options around you.

heatable

Introducing our team...

We are family

Founded in 2013, and having traded for over 10 years, we've fitted over **50,000 energy saving products** across the UK. We specialise in the installation of premium, high-performance solar panels, inverter and battery storage systems.

What we do

Heatable's goal is to make access to energy saving technology **affordable** and **hassle free**.

Accredited and trusted

MCS

REA SOLAR®

Trustpilot

Which? Trusted Trader

TESLA ENERGY CERTIFIED INSTALLER

NAPIT

Enphase Platinum Installer

HIES Accredited Member

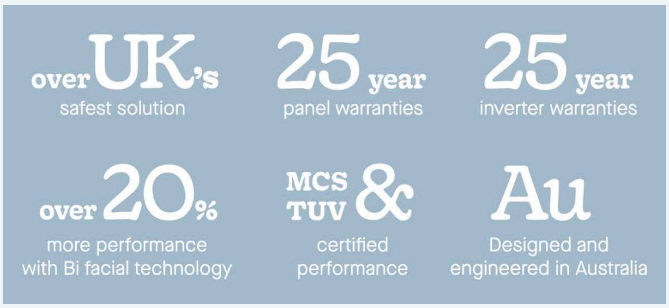
heatable

The proof is in the pudding

It's all well and good telling you how great we are, but where's the proof?

Top Tech

The most efficient panel on the market

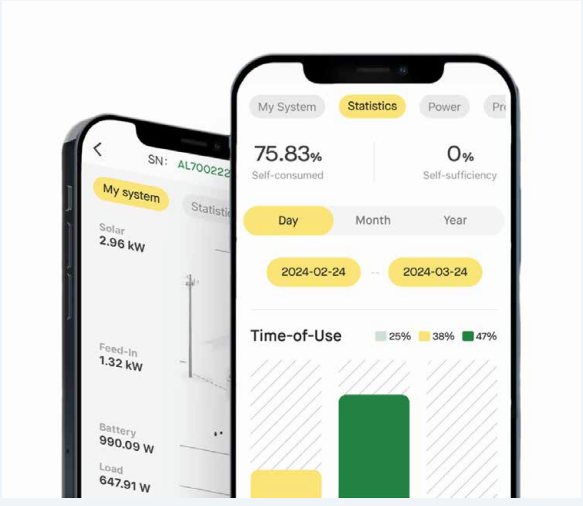


Independent Panel Performance

If one of your panels experiences shading, cloud cover or a fault then the rest of your system will be unaffected.

Live Data Feeds

- Home loads (power demand)
- Solar system power production
- Battery state of charge
- Battery charge or discharge power
- Exported power to the grid
- Imported power from the grid



Get in touch

0330 113 1333

Get a free quote

A GREEN AND HEALTHY ENVIRONMENT

So far, we have covered the basics of reducing energy consumption, switching to clean and renewable energy sources, and generating your own energy, but there is still more to consider in making a building which is both truly friendly to the environment and the people using it. You should be aiming to provide an environment which is healthy and comfortable, and this can be achieved by maintaining a reasonable temperature at all times of the year with good ventilation, pleasant natural and artificial lighting, decent acoustics, and by making sure it is accessible and inclusive.

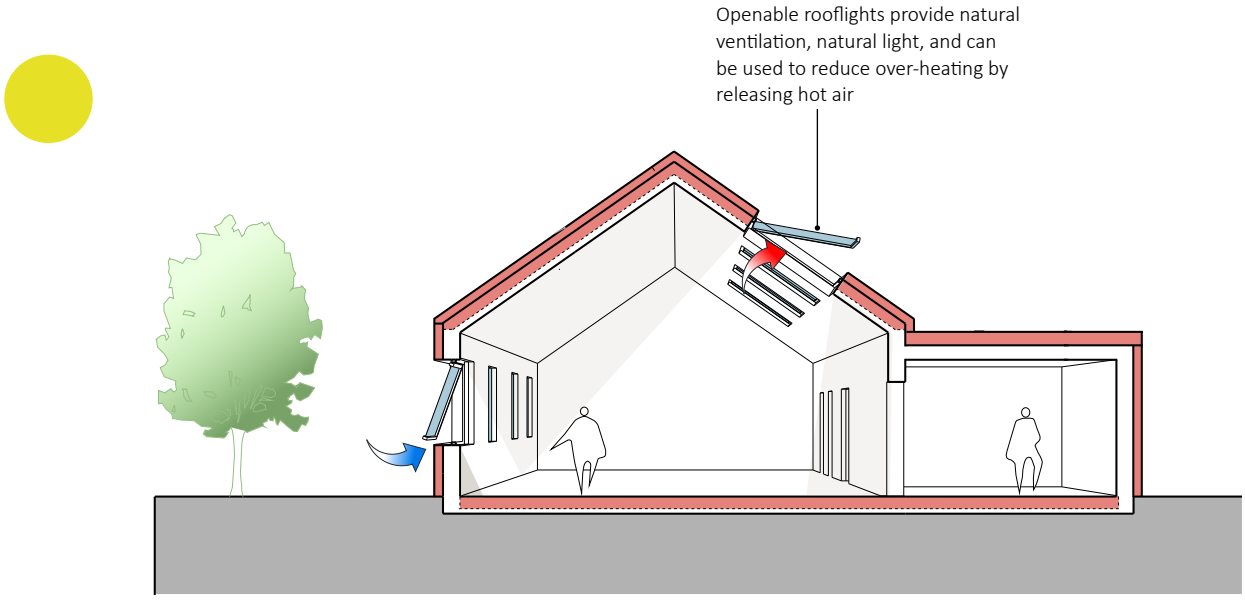
Ventilation

In our view natural ventilation through opening windows and rooflights will usually be the best way to get fresh air into a village hall. The only exception to this would be if an ultra-low energy (Enerphit) solution is being pursued, or if the hall is often being used by very large groups of people and natural ventilation is insufficient to freshen the air between sittings. In these situations, a mechanical supply and extract system would be required but this will be expensive and space intensive and an over-specification for most halls.

Good quality openable windows and rooflights provide users with a simple, effective and controllable way to adjust the level of ventilation. Most village halls are located where the intrusion of outside noise is not a significant problem, so the only disadvantage is the risk of windows being left open during winter months resulting in heat loss from the building. A simple management solution could easily be developed to address this.

Our sponsors Fakro are experts in providing buildings with good daylight and natural ventilation and have a number of products which can transform the quality and performance of village halls.

Rooflights installed above a skittle alley in Otterhampton Village Hall



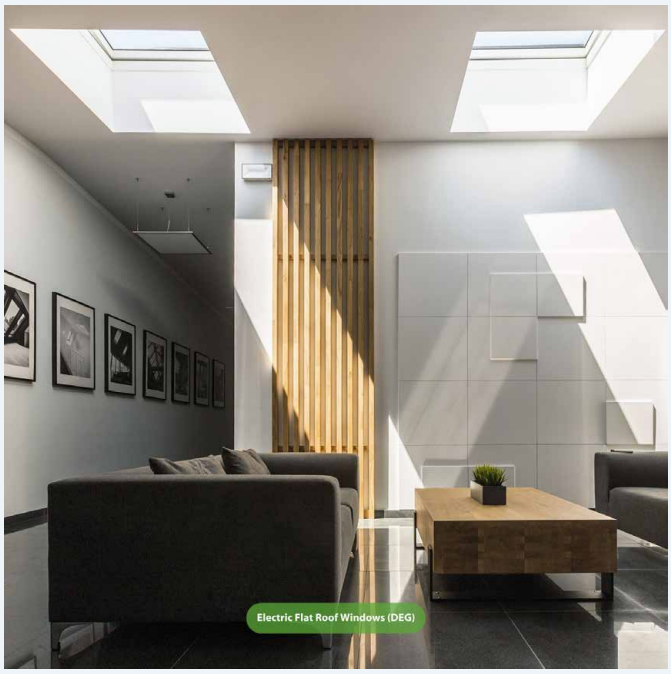
Rooflights work particularly well on the north side of a roof slope, where they let in a diffuse light and avoid too much direct sun. This frees the south side to be used for solar PV panels.

BETTER
FIT A
FAKRO®

Beyond the traditional benefit of roof windows – increased natural light – FAKRO roof windows add a touch of innovation and elegance to a space. Choosing the right products for your project is paramount. We encourage you to seek expert advice to ensure the perfect fit for your unique requirements before finalising your selection.

FAKRO roof windows are fitted, as standard, with the unique topSafe security system, ensuring peace of mind for you and your community. But what truly sets FAKRO apart is our unwavering commitment to sustainability. Crafted with advanced technologies and eco-friendly materials, our roof windows not only enhance your village hall's aesthetic appeal but also minimise its environmental footprint.

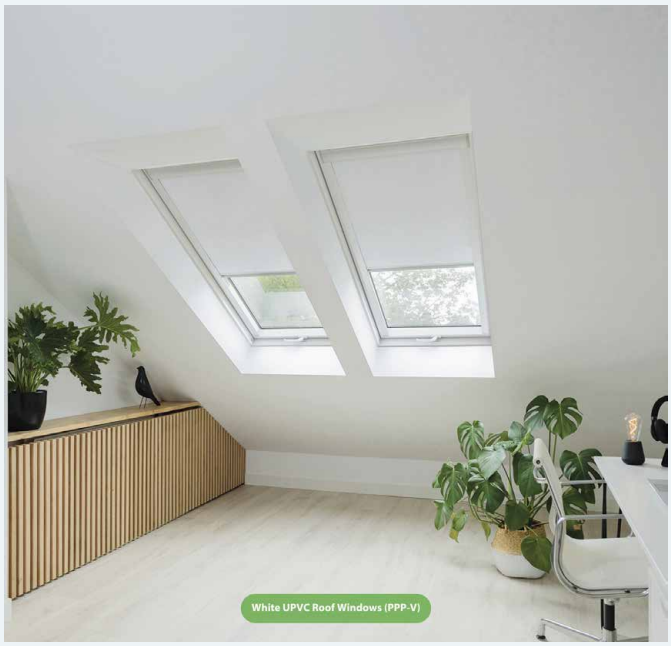
Join us in transforming village halls into sustainable hubs of community life, one roof window at a time, with FAKRO.



Flat Roof Windows

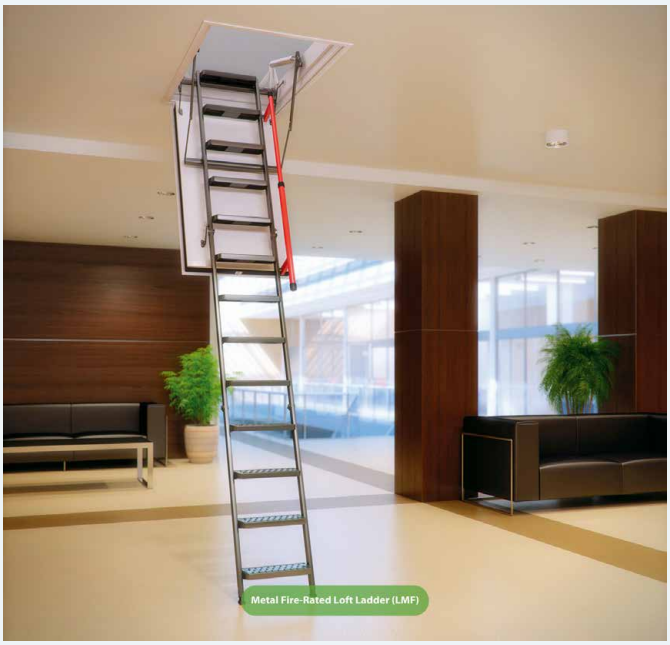
FAKRO offers an extensive selection of flat roof windows tailored to a variety of requirements and preferences. From manually operated to electrically controlled options, our flat roof windows provide complete airflow management. For spaces prioritising natural light without ventilation needs, non-opening models are an ideal choice. Embracing exceptional illumination and refined aesthetics, our windows align seamlessly with village hall design standards.

GO GREEN



Pitched Roof Windows

Our comprehensive range of pitched roof window designs includes centre pivot windows, the dual-function preSelect top-hung or centre pivot windows, L-shaped windows, access roof lights, and roof windows suitable for **conservation areas**. Each roof window type is available in multiple interior finishes, ranging from White UPVC for maximum versatility to Natural Pine and White Painted styles, ensuring there is an option to complement the interiors of any village hall.



Loft Ladders

The choice of many professionals, our loft ladders are expertly crafted from premium materials and designed to stand the test of time. All FAKRO loft ladders come fully assembled with an integral, insulated, and fully finished hatch - ready for quick and easy installation. The insulation on all types means you also benefit from increased air tightness and reduced heat loss. You can choose from wooden, metal, or scissor options in fire-rated or energy-efficient models.

A GREEN AND HEALTHY ENVIRONMENT

Lighting

Natural lighting should be maximised where possible and supplemented by artificial lighting. Many halls will have already changed to low-energy LED lighting and those that haven't should do so. It is worth also installing daylight sensors, movement sensors and timers so that lights are not accidentally left on.

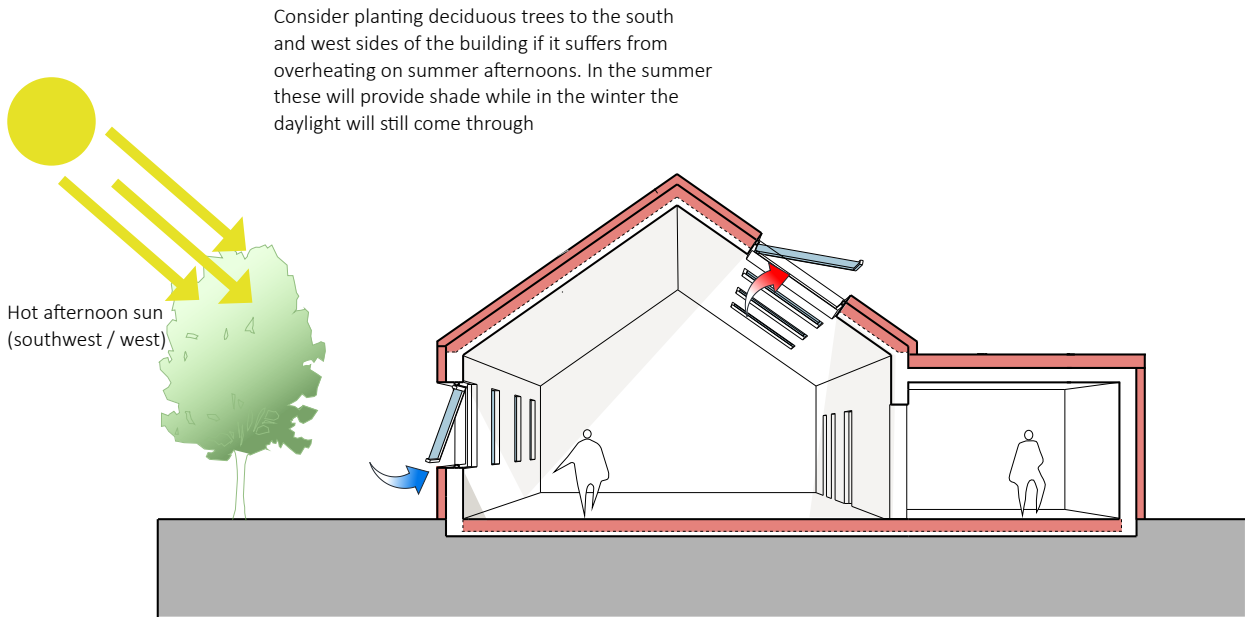
Overheating

An increasing problem is overheating, particularly in buildings that may have large south and west facing windows, and especially at times of high occupancy. Insulating the building will help reduce heat gain but this alone will probably not be sufficient to address some of the extreme heat waves experienced in recent years.

We recommend cooling the building passively which is achieved by using natural ventilation to release heat from the hall. To be effective the openings need to be of sufficient size which means the windows and rooflights need to open fully, and ideally the openings should be on opposite sides of rooms to allow cross ventilation. Openable rooflights are also an ideal way to cool a building as heat rises and this will enable it to escape rather than sit in the roofspace.

Planting deciduous trees on the south and west sides of the building to create shade is also a very effective, simple and attractive way to reduce heat gains. Consider the eventual height the trees will grow, and don't plant them too close to the building or they may obscure too much light and the roots may lead to potential problems with the foundations. The NHBC have produced a very simple guidance document which is intended for use in relation to houses but is also applicable to village halls. It is available here.

During periods of extreme heat, conventional approaches to passively ventilating a building may not be sufficient. In such circumstances, artificial cooling systems such as air conditioning may be tempting. However, we would usually advise against installing air conditioning in a village hall due to a number of factors including installation costs, running and maintenance costs. We previously explained in the section on heat pumps that air conditioning uses refrigerants which have a high global warming potential and ideally should be avoided if you are trying to be environmentally friendly.



Try to address overheating using passive means such as cross ventilation and solar shading, rather than relying on artificial cooling or air conditioning

Accessibility

While this is not about energy efficiency it is important to mention accessibility as it is vital that village halls offer inclusive spaces that can be accessed by everyone in the community. When considering energy efficiency upgrades to the hall, don't forget to ensure that accessibility remains a high priority as the construction work will offer an ideal opportunity to make these improvements. While ACRE's survey of 2020 revealed that almost 80% of halls now consider themselves to be fully accessible, there are clearly still some where this needs to be improved.

ACRE have produced a helpful Information Sheet (no.25) on accessibility which is available through ACRE's members.

New access ramp and power-assisted door at Otterhampton Village Hall

Acoustic performance

Acoustic performance is an important consideration for village halls with varied use by different groups, and for different activities. It can also have a great impact on the quality of a space and the comfort experienced by those using it.

Halls often have many hard surfaces, and the reverberation can make it difficult for people to hear, particularly in large groups. Many of the case study participants talked about changing the ceiling tiles to sound absorbing panels with fantastic results. There are many other products available on the market that can achieve the same result and this aspect should not be overlooked when you are setting budgets and scoping the work.

Natural acoustic ceiling cushions from The Woolly Shepherd were installed at Otterhampton to soften the acoustic

The old ceiling tiles at Haddenham were replaced with sound-absorbing ceiling panels, a very simple and effective way to soften the acoustic

Water

Water usage can be reduced with low-flush toilets, eco-friendly urinals, and sensor / timer taps. Most village halls do not use lots of water, but in a building used by lots of different people it's likely that not everyone is as careful as one another and the potential for taps to be left running for long periods needs to be avoided.

Rainwater can also be harvested from rooftops into large water butts and used to water flowers and plants in the summer.

If you are re-surfacing your car park, consider installing a permeable surface which will enable water to soak through instead of running into the drainage system as this will reduce run-off and so can help alleviate flooding elsewhere.

MATERIALS

Embodied carbon

So far, we have discussed carbon emissions only in terms of the energy the village hall uses to operate (operational carbon). There is however another concept to consider which is about the carbon emissions released as a result of the manufacture of materials and products used in construction, commonly referred to as the 'carbon content' or the 'embodied carbon'.

The subject can be complex but in summary we must try to use materials with a lower carbon footprint. These might be natural materials like sustainably grown timber, stone, hemp, sheepswool or cork. Materials with a high carbon content generally take a lot of energy to make such as steel, concrete and aluminium. The best solution of course is to make use of materials that are already in existence.

Reduce, reuse, recycle – the circular economy

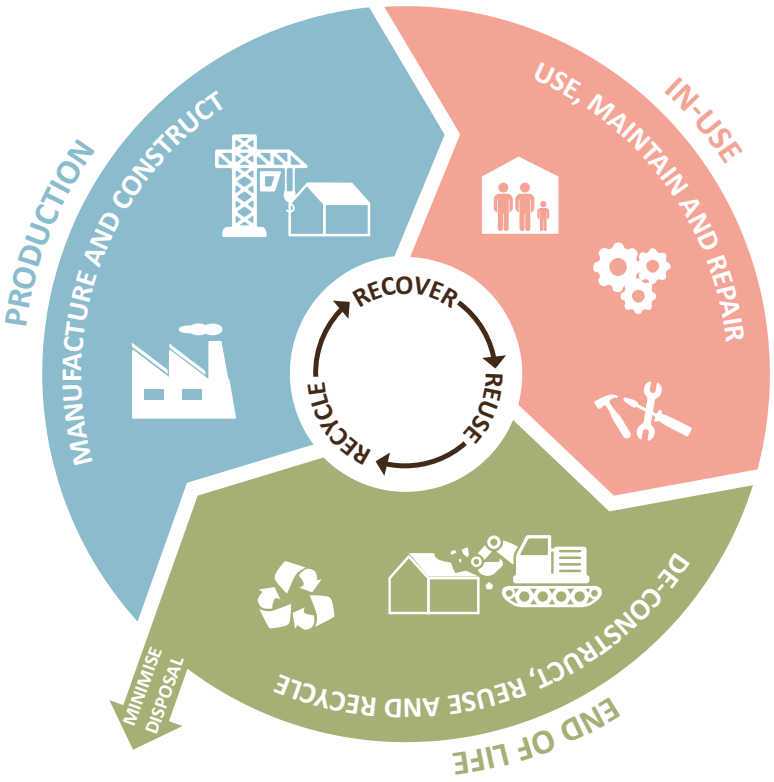
Due to limited resources, village halls are probably already rather good at reducing, reusing and recycling. The same ethos should be applied to the building project.

This may seem obvious, but in the construction industry for many years there has been a preference to rip out and replace with new, rather than retain and reuse. Doors, skirting boards, architraves, panelling, flooring, tiling, and in fact all manner of items often get torn out and thrown away despite them being perfectly sound but just looking a little aged.

These are often replaced with cheap modern materials such as MDF or PVC, which have a clean and new appearance on day one but often don't last as long as the original. The challenge is breaking this cycle and looking for ways to reduce the amount of new materials we need, whilst spotting opportunities to reuse or re-purpose those things that need some attention or modification.

This approach is not only far better for the environment but can save money and result in spaces that are more interesting and characterful. There are now many local reuse initiatives across the country which may be interested in taking some of the things you don't need, and in return may have things you want.

At the hall in Hurst Green, the committee built themselves a great bar in their refurbished hall, re-purposing one from a local pub that was closing down. Such an approach is possible for many other items, so get in touch with local contractors, other village halls, online recycling forums, reclamation yards, recycled timber yards, and let them know what you have and what you are looking for.



Natural, local, and low-impact materials

Inevitably some new materials and products will be needed, and we suggest you encourage your architect or contractor to specify materials which are natural, locally available, recyclable and have low environmental impact.

Modern, complex and composite materials, particularly plastics and metals, can be difficult to recycle, whereas simple, durable low-maintenance materials like timber, slate, tile, and brick can be used again and again. Tell the architect and contractor that the timber must be from legal and sustainable sources in accordance with FSC or PEFC schemes. You can also use organic and water-based paints and stains with low VOCs (volatile organic compounds).

If you are looking at undertaking an extension or even building a new hall, it may be possible to do this with entirely natural building techniques such as straw bales, rammed earth, hemp, cork, sheepswool, woodwool, and lime. Many of these low-tech approaches also offer the opportunity to involve the community and so can have high social and educational impact. If you want to do this, prepare yourself for an interesting journey and appoint a good architect to help you!

TRANSPORT

The wider issue of rural transport and how this can be made more sustainable is beyond the scope of this document, but there are a few things that can be done in relation to the village hall. Ways to help include installing a covered and secure cycle parking shelter and encouraging walking to the hall and car sharing. There are also ways to set up community car share clubs which may be worth pursuing if there is demand in your area.

Remember also, that simply keeping the hall open and providing popular services to local residents is a benefit as people then don't need to travel beyond the village so often.

Electric vehicle (EV) charging

Several of the halls we visited had either already installed EV charging points or were looking to do so. Village halls are well placed to offer this service, which can be particularly useful for local residents who may not have off-street parking and so are unable to install their own home charger.

In busy areas where many people are likely to use the charging point you may find your hall is of interest to charge point operators (CPOs). There are various financing, ownership, leasing, hosting, and revenue share options, and you will need to work out what suits you best.

Regardless of location, there are definite benefits of installing EV charging at village halls. Our sponsors ZOLB EV usually recommend installing fast AC dual chargers (up to 22 kW), on current electricity supplies. Utilizing dynamic load management, if there isn't the power they throttle back. These require much lower capital expenditure levels than rapid DC chargers, are less complicated to install, but still allow for a good amount of usage, carbon reduction and income. A CPO like ZOLB EV can install, support, and manage all the chargers, including a 24/7 driver care line. It is admin light for the hall, so you would not need to set up payment systems.

Various funding options are available, however depending on finances, it might make sense to purchase chargers outright and then recover monies via revenue generation. Equally, grants are indeed available for charities and small businesses, including allowing income generation. ZOLB EV can help you navigate this.

You can also contact OZEV (the Office for Zero Emission Vehicles) for specific information about potential grants.

Further information on EV charging is available in this short video of the hall at Kirtlington in Oxfordshire.

ZOLB EV

Electric Vehicle (EV) Charging Stations are charging systems designed to power up electric vehicles. These setups include several parts:

- The Hardware (Chargers)
- Charger & Driver Software
- Installation
- Business & Driver Support

Companies like ZOLB EV are known as Charge Point Operators (CPOs), essentially putting these stations together and making sure they work smoothly, taking care of all the admin, like setting everything up, support and billing. This way, businesses and venues can easily add these charging stations without worrying about the complicated details.

Why EV charging is important

With the trend of EV cars growing and the need for more chargers in the network, village halls are especially well placed in the local community to be part of this movement towards net zero.

There was an 18% increase in the number of battery-only electric cars registered in 2023 compared to 2022. This shows more and more people are choosing electric cars, but there is a shortfall in the number of charging stations available to the public.

As EV charging specialists focusing on solutions for local communities, ZOLB EV is here to guide private owners, charities and public bodies through the journey of setting up EV charging stations. Not only is it a step towards environmental sustainability, but it also can be a savvy move for the village hall's wallet and reputation in their local community.

Environmental commitment

Installing EV chargers at your village hall helps to show the community that environmental commitment is high on the list and that you are proactive in supporting sustainable practices. Adhering to ESG (Environmental, Social, Governance) standards shows your village hall as a leader of environmental stewardship in your community.

New revenue stream

Transform your car park into a new revenue hub by offering EV charging. This isn't just about providing a service; it's about opening up a new revenue stream. Using dynamic tariffs and charging a fee for using the charging service will create a generous new source of income for your hall from day one. We can help forecast potential new income.

Community service and accessibility

By providing dependable EV charging, you're offering a lifeline to those who might not have the luxury of charging at home or are in need of a boost en route. It's about ensuring your village hall remains an integral part of the community's daily life, offering convenience and reliability where it matters most.

Increased footfall

Data shows that the more EV chargers in a community, the more visitors that community receives. EV drivers are always on the lookout for charging points; this increase in footfall isn't just good news for the hall; it's a boon for local businesses and community events too.

General questions for consideration

Parking Space and Charger Type:
Do you have enough room for EV chargers? Whether wall-mounted or pedestal, space is key.

Electrical Power Supply:
Is your current electrical setup up to the task? We can help figure out the logistics and ensure everything's in place.

Public vs Private Charging:
Think about whether you would like to offer public (anyone can use the service = increased profitability) vs private charging (perhaps just for staff & visitors = less profitable, but fewer car movements). This can be changed at any time.

Accessibility and Safety:
Easy access and good lighting are must-haves for your charging stations. Safety first, always.

Reach out to **register your interest with ZOLB EV** in bringing EV charging solutions to your village hall. Together, we can drive positive change for our communities and our planet.

Simple 4-step process for getting set up

Getting EV chargers installed at your village hall might sound like a daunting task, but fear not! We've broken it down into a simple, four-step process.

Step 1: Register your interest

Click here to leave your details on our dedicated page.
Or contact us on:
hello@zolbev.com
0203 442 2010

Step 2: Site assessment and electrical information

Don't worry, we'll guide you through it. We need to know a bit about your site and its electrical setup; this info will help us figure out how many charging sockets we could fit and how.

Step 3: Customised feedback and quotation

We'll get back to you with advice on what's possible and also provide a quotation for the supply and installation, along with an estimate of how much revenue your village hall could generate from the charging stations.

Step 4: Booking and installation

The final step is all about setting a date for installation. We'll work with you to find a time that causes minimal disruption, ensuring we handle all the admin.

MANAGEMENT AND COMMUNICATION

A good village hall should be simple and intuitive for people to use, but its ultimate success will still depend on effective management and communication. There are now various apps on the market for booking and managing village halls, and also for controlling and programming the heating. You will need to investigate the various ways of doing this and select a method which is appropriate for your hall and the way it is used. As this is an emerging technology we have not found a single solution and different halls appear to be taking different approaches. Ensure the hall is fitted with a smart meter so that the amount of energy being used can be accurately monitored and recorded.

Failsafe solutions which people can't get wrong are a good idea, such as using sensors and timers for taps, lights and water heaters. Controls should be simple with clear instructions provided on how to use them. Basic things like fitting overhead closers to certain doors to reduce heat loss can be a good idea, although this must be balanced with inclusive accessibility needs.

Encourage recycling and composting, and try to procure responsibly, such as by avoiding single-use plastics and trying to source locally and sustainably. Low-energy appliances and eco-friendly hand dryers are also significant in reducing energy consumption so bear this in mind when replacing products.

ECOLOGY AND BIODIVERSITY

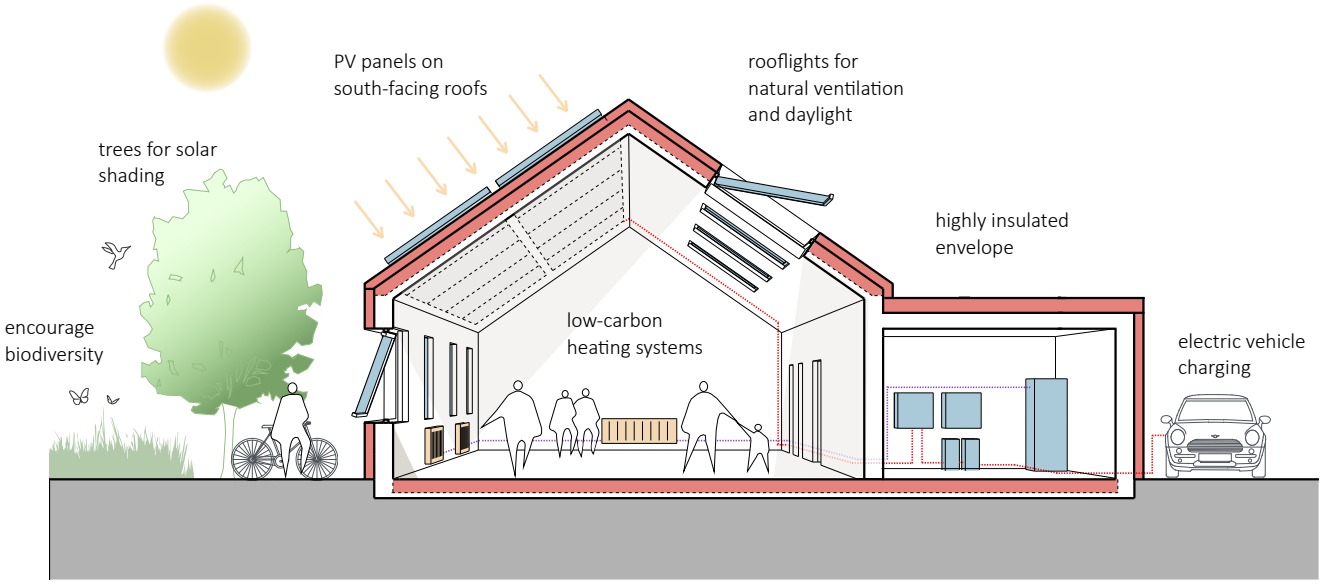
If your hall has some open space or if it works with the parish council, it can also contribute to improving local biodiversity and ecology. Not only does this stand to make your community a more pleasant place, plants are also a great way of absorbing carbon in the atmosphere.

Look at the space around the village hall and think about how this is being used. Is the car park larger than it needs to be, or are grassed areas mown too often? Consider opportunities to grow food, allow areas to re-wild, and plant wildflower areas of benefit to insects, butterflies and bees. Bird and bat boxes can be installed on the side of the village hall and bug hotels can be built as part of community projects. If there is sufficient land around the hall, you may also want to consider tree-planting.

For more information and support, please look at resources published by organisations such as the Woodland Trust, the Wildlife Trusts, and the RSPB.

SUMMARY

We hope you have found this guidance helpful and inspiring. Taking on a village hall eco-retrofit is not an easy thing, but the journey and the results can be incredibly rewarding, as the six case study projects show. Each hall is different so no two projects will ever be the same, but hopefully this guidance will help you feel more confident and knowledgable to get started and achieve something that you and the whole community can be proud of.



In speaking to the six case study participants a few subjects kept cropping up, and we thought we'd summarise these into a short closing section.

Assemble a team: Don't try to do it on your own. It will be more enjoyable and a better outcome if you set up a small but dedicated core team.

Be strategic: Speak to other local partners and seek opportunities to collaborate for mutual benefit, such as by establishing a Community Energy Network.

Involve the community: Take the community with you. Involve them as much as possible in consultation, fundraising, and helping get the job done.

Make a plan: Agree what your priorities are, what you ultimately want to achieve and how you want to get there before you start building.

Phase the work: If necessary work out a three or five year plan and undertake the work in phases. You don't have to do everything in one go.

Keep calm and carry on: Don't give up if your grant funding applications aren't all successful. It's time consuming to complete the forms but money is available.

Appoint professionals: Expert advice is very useful and in some cases essential, and you should identify where you need this assistance. But be clear with them about what you need help with.

Be prepared: Expect at least one or two surprises, if not more, so keep a sum of contingency money aside to deal with these occasions.

CONTENTS

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PART THREE

CASE STUDIES

HADDENHAM VILLAGE HALL, BUCKINGHAMSHIRE

www.haddenhamvh.uk

This large hall was upgraded on a modest budget, with insulation, a new air source heat pump, PV panels and EV charging

- Roof Insulation
- Solar Panels
- Air Source Heat Pump
- EV Charging Points

Haddenham is a large village of around 5,000 people which benefits from being located on a strategic railway line between Birmingham and London, and has recently expanded due to the construction of new housing developments. At around 750sqm the village hall is therefore larger than most, built originally in the 1960s and then extended by the County Council in the 1980s. Today the building consists of 3 main spaces and is owned by a trust, the trustees of which are the Parish Council.

With a longstanding, separate charity 'Haddenham Village Hall Management Committee' operating the daily activities of the hall, its trustees were faced with the challenges of the main hall's ageing, gas-fired warm air unit and its lack of insulation, along with the desire to provide a renewable energy supply to contribute to the hall's operating costs.

Over recent years, the committee had prioritised de-carbonisation and had already delivered a number of village hall initiatives, so it was well prepared to undertake a further energy efficiency improvement programme. Some works had already been completed, such as replacing inefficient appliances. The building already benefited from double glazing and low-energy LED lighting had been installed in modern times, along with programmable thermostats to prevent the heating being left on, and rules were reinforced ensuring lights were turned off and doors closed.

In parallel, and encouraged by the village's Zero Carbon Haddenham group, the Parish Council had initiated the installation of two EV charging points for public use. Three members of the hall's Management Committee had career experiences compatible with the needs of this project.

Quotations were sought from prospective installers and the work was delivered in phases, by placing separate orders with each contractor. A structural engineer was appointed to check that the roof could take the weight of the required 48 PV panels and, at the same time, the added thermal insulation; there was no architect and the project management was undertaken by the team. There is a great variety of village hall users, with inconsistent heating patterns, therefore battery storage was a vital part of the new system.

Funding was secured from just three sources; £16,989 from the Platinum Jubilee Village Halls Fund (Defra/ ACRE, £72,000 section 106 money with assistance from the Parish Council, and £10,443 from the hall's own fundraising. This enabled three main elements of work (prices include VAT);

- £40,000 to install 48 solar PV panels connected to five batteries (17.75kWh total storage)
- £40,000 to replace the old 115kw gas boiler with a 36kw air source heat pump
- £10,000 to install 200mm of Knauf Insulation mineral wool above the main hall ceiling.

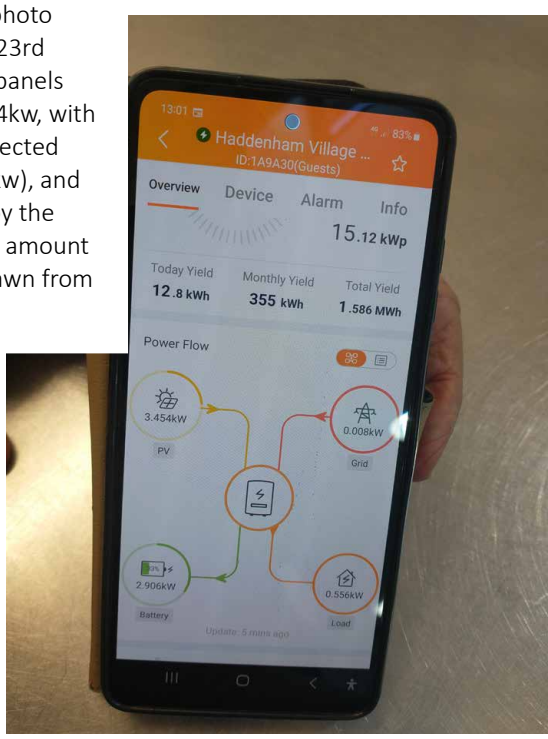
The main hall is now a well-insulated space which is very well-used with multiple activities taking place every day. Booking the hall is managed with an app and the temperature of the hall is controlled using an app and adjusted depending on the nature of the activity taking place. Currently one person controls the app but the temperature of the hall can be overridden by changing the control panel in the hall.

Two EV charging stations were installed in a partnership between the Parish Council and the charging company. Because of the likely number of users paying to charge their car in this location the charging company installed free of charge and then reimburses the village hall for the electricity used.

South-east facing PV panels are visible on the low-pitch roof with the two condensing units for the air source heat pump visible to the left. The heat pump is an air-to-air system, capable of heating or cooling. Hot water is provided by individual over-sink instantaneous electric heaters as overall hot water demand for the hall is low.

The inside of the main hall at Haddenham following the installation of roof insulation.

The efficiency of the solar PV system is checked using the Solis Cloud app. The photo was taken at 1pm on 23rd November when the panels were generating 3.454kw, with most of that being directed to the battery (2.906kw), and 0.556kw being used by the hall. Only a very small amount (0.008kw) is being drawn from the grid.



AIGHTON, BAILEY & CHAIGLEY MEMORIAL HALL, HURST GREEN, LANCASHIRE

www.hurstgreenmemorialhall.co.uk

With help from local farmers a ground source heat pump has transformed the hall, making it a popular destination for people far beyond the village

- Roof Insulation
- Ground Source Heat Pump
- Replacement Windows

Next Phase.....

- EV Charging Points

Hurst Green is a small village located in the Ribble Valley. The hall was built from local stone by farmers in the late 1950s and comprises one large main hall with smaller rooms on each corner, a mezzanine gallery, and a small basement area. It is owned by the Parish Council and is a large hall with a floor area of approximately 550sqm.

In 2018 a proposal to demolish and re-locate the hall caused the community to think about why it didn't get much use, and from this came a realisation that for it to be used and valued it would need to be upgraded.

Initially an architect was appointed who put forward ideas for extending the hall. However the construction cost was too high, and the committee realised that they didn't need more space, they really just wanted the hall to be warm and comfortable. So instead they appointed a project team on a limited scope of services to provide advice as required.
In 2020 work began and the roof was entirely re-layed, re-tiled and insulated at rafter level using a combination of mineral wool and rigid insulation boards.

The existing dysfunctional electric wall heating was then entirely replaced with a new ground source heat pump, copper pipework distribution and new radiators. The committee considered an air source heat pump but due to the availability of a large grassed area directly behind the hall were able to install a shallow network of pipes beneath the ground (a horizontal loop system), which local farmers excavated for them. The hall has a large pitched roof but as the main slopes face due east and west it was decided that this would not be optimal for PV panels.

The hall is now warm and usable and hosts a variety of activities. The heating is controlled by an app which two people have, and is programmed to achieve 22-23°C for the W.I. meetings and will turn down for activities such as ballet and dance. The hall can be cooled by opening windows in the summer but this is discouraged in winter unless there is a large gathering. Up to 200 people can be accommodated, and it is now regularly hired out for weddings and parties to people coming from ten miles away in Blackburn.

An analysis of the energy use figures actually show an increase from an approximate annual consumption of 20,000 kWh before the works to 30,000 kWh after the works. The reason is that before the works the hall was rarely used and when it was the heaters were turned on just for the duration of the booking which was insufficient to warm a cold building of this size. Now the hall is maintained at a minimum 18°C and consequently there are now many regular bookings.
In 2023 there were also 54 occasional bookings and at the beginning of February 2024 a further 36 already booked for the year ahead. The energy use for a large hall of 550sqm is about 55 kWh / sqm / year which is relatively low.

The committee are aware that their energy bill is higher than before, but this is reduced by a non-domestic RHI Ofgem subsidy. More importantly they now have a constantly warm hall which is usable, comfortable, and generates income through being regularly hired out to a wide range of users.

The committee are currently researching how to install up to five EV charging points and will undertake this along with a package of improvements to the car park as part of a £50,000 joint enterprise with the Parish Council.

Cost of the work

- £73,300 for an upgraded insulated roof
- £137,700 for the ground source heat pump and heating system
- £21,500 for new double-glazing
- £62,500 for renovating the changing rooms, kitchen, toilets, and jubilee room
- Total = £295,000 inc VAT

The main village hall space

Funding and Grants

- National Lottery- £81,700
- Lancashire Environmental Fund- £68,000
- Ribble Valley Borough Council- £20,300
- Awards for All- £19,000
- Garfield Weston Foundation- £17,500
- Bernard Sunley Foundation- £15,000
- Village fundraising secured a further £20,400, while smaller organisations such as the Harold & Alice Trust, the Craven Trust, the Foyle Foundation, Skelton Charity, the Duchy of Lancaster, BA Carbon Fund, and the Village Halls Improvement Grant Fund (Defra/ACRE) were responsible for a further £43,000 between them.

The internal part of the ground source heat pump is located in a semi-basement beneath the stage area

The hall benefits from a large field directly behind it, providing an ideal area for a shallow coil system, part of the ground source heat pump.

SKELTON TOPPIN MEMORIAL HALL, PENRITH, CUMBRIA

www.skeltonvillagehall.com

Breathable internal insulation, infrared panel heating, and a large array of PV panels will transform this remote Cumbrian memorial hall

Roof & Wall Insulation

Solar PV Panels

Infrared Heating

The village of Skelton is located around 6 miles west of Penrith. The stone and wood-panelled memorial hall was built in 1923, comprising one main space with two smaller rooms and ancillary spaces to the front.

Having thankfully survived potential demolition around the Millennium when the funding culture promoted new-build, the committee secured a lottery grant of £50,000 in 2018-2019 to explore options for improving the hall. A local architect was appointed, an energy audit was undertaken, and plans were made for extending and upgrading the hall. Contractor quotations however came back at three times the anticipated level and at the same time funding became even more scarce, so the project went on hold until early 2023 when they began work on a phased basis with a local builder.

As at the end of 2023 they have secured £200,000 of funding for phase 1 which comprises internally insulating the walls and roof of the main space, installing infrared heating panels, and re-decorating. The oil heating system will be removed and hot water provided with electric instantaneous heaters. Future phases will follow and will include the same work to the two smaller rooms, altering the entrance to enable wheelchair access, and refurbishing the kitchen and toilets.

Installation of 60 solar PV panels (providing up to 19.5kW) integrated into the large south-facing roof formed a separate package of work in June 2022, and the former projection room is now the green energy hub accommodating two 10kW hybrid inverters and six batteries providing a total of 34.8kWh storage. Between August 2022 and August 2023 these generated 17,500 kWh of power, with up to 130kWh on a good summer day, the excess being exported back to Octopus for 4.1p per kWh. Once EV chargers are installed the hall will be able to use the excess generated to charge the vehicles.

Ten 2400W infrared heating panels will be installed in the main hall which will be programmable by app. Trustees opted for infrared heating in preference to a heat pump as the village hall may only be used for one activity per day and it was felt this would be more efficient.

The trustees have worked closely with their architect since 2016 and carefully followed the RIBA work stages, which gives comfort and re-assurance to the trustees, especially since they are not a CIO, although they may consider this later.

Cost of the work;

- £250,000 approximate (anticipated) inc VAT

Funding and Grants;

- National Lottery Development Fund- £50,000
- CWMET (Cumbria Waste Management Environment Trust) - £40,000 paid retrospectively
- National Lottery Community Fund- £37,500
- Eden District Council- £10,000
- EDC COP 26 Fund- £30,000
- Platinum Jubilee Village Halls Fund (Defra/ACRE) £33,600, plus a loan of £40,000
- Lake District Foundation (LDF)- £37,584 (60% of the cost of the PV installation)
- Cumbria Community Fund (ENWL Storm Arwen Community Resilience Fund)- £14,520
- Skelton Parish Council- £4,000
- Cumbria County Council- £1,156

South-facing roof slope of the main hall with 60 PV panels installed

40mm breathable wood-fibre insulation panels are installed to all internal walls, co-ordinated around architectural features

The main hall space with walls insulated and ceiling recently plastered

TRENT MEMORIAL HALL, DORSET

www.trentmemorialhall.co.uk

Construction of an extension provided the opportunity to upgrade the original building with a new air source heat pump and better insulation

Roof & Wall Insulation

Air Source Heat Pump

Next Phase.....

Solar PV Panels

Trent is a small village of around 310 people a few miles outside Sherborne in Dorset. The village hall was built in 1923 as a Memorial Hall onto which a lean-to was constructed in the 1970s. In the years before the work the hall had become very tired and dated and wasn't a very nice building.

To help unite the community around a proposed renovation of the hall, extensive consultations were undertaken starting in 2015, which led to the decision to demolish the lean-to and provide a new extension comprising a large meeting room, kitchen, bar, entrance lobby, and toilets including one that is accessible standard. This almost doubled the size of the original hall, taking the whole building to 235sqm. Construction work started in April 2019, the shell of the extension was completed in November, and fitting out commenced in January 2020 and completed in May.

As the village has no mains gas, the hall was previously powered by liquefied petroleum gas (LPG) which ran two gas-powered heaters in the main hall. This system was removed and a new air source heat pump installed which supplies warm air throughout the building via units in the ceiling and on the walls. In the summer the system will also be able to provide cooling.

A new suspended ceiling with sound-absorbing tiles and integral LED lighting was added, slightly raised from its previous position, and with 450mm of mineral wool insulation above. The north facing wall of the hall was also insulated to the inside with rigid insulated plasterboard. The south wall was not upgraded since this became enclosed by the new extension which was constructed to modern standards. The windows were already double-glazed so were not replaced.

The hall now runs entirely on electricity except for two small gas bottles which supply the gas hob in the kitchen but which the committee are keen to replace. Hot water is provided via small instantaneous heaters. PV panels have not yet been installed but as the south-facing roof provides an ideal opportunity the committee are now looking at ways to progress this.

A total of around £190,000 (inc VAT) was spent on the improvement project and was funded by a combination of grants, loans, and village donations. The Ernest Cook Trust owns the hall and provided £60,000 which was the largest single donation and enabled the project to commence and complete the shell of the extension. This was started without funding secured to complete the rest of the work but the thinking was that if they got started it would be easier to interest people and raise further money, and this was proved right. This approach takes some confidence but proved to be very effective as it got the ball rolling and helped obtain individual donations of £25,000 and local fundraising of £12,000.

David, the hall secretary, and Paul, the hall chairman, involved the community a lot; a local person installed the kitchen, the electrician lives in the village, a local sound engineer helped with the AV system, and volunteers fitted the skirting boards and shelves and did all the painting. The volunteers had a mixture of experience and ability and worked in groups of

The new kitchen

The hall before the work

The hall after the work

two to three to get the job done. An architect was used for the planning and building regulations drawings and after this the project was managed by Paul who has construction knowledge from his farming background. As an extension was involved the project was undertaken by one main contractor who employed local electricians and plumbers.

The hall is now hired far more than it used to be, with eight regular user groups, 24 birthday parties in 2023, and a number of weddings. As a result annual income has more than doubled since 2018.

Funding and Grants;

- Ernest Cook Trust- £60,000
- Village Halls Improvement Grant Fund (Defra/ ACRE) £20,500
- National Lottery- £10,000
- Garfield Weston Foundation- £10,000
- West Dorset District Council- £5,000
- Queen Thorne Parish Council- £1,000
- Individual donations- £25,000
- Local fundraising and hall reserves - £60,000

HEWISH & PUXTON VILLAGE HALL, SOMERSET

www.hewishandpuxtonvillagehall.org.uk

A run-down hall nearly lost by the community has been made safe, secure, dry and warm, providing a firm footing in its journey to net zero

Roof & Wall Insulation

Hewish is a small village of around 300 people, bisected by the A370 in Somerset. The village hall which was built in 1963-64 was at risk of being sold in 2018 as the lease ran out, and the community had to decide if they wanted to buy it or lose it. The building was in a bad condition with no insulation, vermin ingress, and ceilings falling down, but the community pulled together and £85,000 was raised, sufficient to buy the hall and secure its future for the community.

Phase 1 involved replacing the old leaking asbestos roof with a new insulated metal sandwich panel system. Phase 2 saw the remainder of the building refurbished, including new insulation and metal cladding to all the walls, a new kitchen, a new meeting room with sound insulation in the walls, new toilets including one which is accessible standard, and the installation of broadband. The windows were already double-glazed so these were retained, and the lighting was replaced with low energy LED. The work was undertaken by local companies which were contracted individually so there was no single main contractor.

Phase 3 saw the replacement of the bio-digester as there is no mains sewage system, along with replacement flooring and new stage curtains and blinds to the windows. Finally in 2022 a new audio system and hearing loop was installed. In total, including the £85,000 initial purchase, a total of around £200,000 including VAT was spent.

The heating is still run on a kerosene boiler and radiator system, but due to the insulation the amount of energy used is lower than it used to be, and more importantly the hall is now warm. In future this could be changed to a cleaner form of energy such as a heat pump or infrared system, as the fundamentals of fabric-first improvement have already been undertaken. The heating is currently controlled on a simple system whereby it can be switched on for one hour after which it automatically turns off. This means the heating can't be accidentally left on overnight.

A surveyor and engineer were engaged early in the project as Lynda, the chair of the parish council and village hall committee, was advised that she should obtain professional advice but she regretted this as she felt they over-complicated the process, and subsequently she undertook the project management herself. Lynda was confident in this because all the people she employed she knew and trusted as they were small companies and individuals that she had worked with before.

The project was a success and whereas the hall was previously mainly used by dog clubs as it was too cold for most groups, it is now used every day of the week, by model railway and craft clubs, a dance school, a brass band, and for coffee mornings, birthday parties and even a couple of wedding celebrations. The Women's Institute have always used the hall since it was built, but they used to keep their coats on in the winter and are glad not to now.

Funding and Grants;

- Solar park community fund- £40,000
- Enovert Community Trust (Transfer Station)- £45,000
- National Grid (due to proximity to Hinckley Point)- £20,000 donated at the start
- National Grid – £20,000 donated two years later
- National Lottery Community Fund- £10,000
- North Somerset District Council- £11,500
- Village Halls Improvement Grant Fund (Defra/ACRE) £16,300
- Rural Community Buildings Loan Fund (Defra/ACRE- £6,000
- Tesco Community Grant (administered by Groundwork)- £2,000
- Rural England Prosperity Fund (REPF)- £5,000
- Local fundraising- £10,000
- Harvest Home (Hewish, Puxton & Wick Street)- £10,000

The new kitchen

The newly insulated and decorated main hall space

New low-energy LED lighting was installed and the hall decorated to give it a fresh and bright appearance

OTTERHAMPTON VILLAGE HALL, SOMERSET

www.otterhamptonvillagehall.co.uk

This unusual type of hall required a site-specific approach, and included insulating the roof, replacing the windows and installing PV panels

Roof & Wall Insulation

Replacement Windows

Solar Panels

Originally built as a malthouse in the 1940s, the village hall in Otterhampton is unusual as it owns none of the space around it and so has no grounds or car park. The hall is large at 454sqm and spread over three floors, with a large main hall, kitchen and lounge/bar on the ground floor, a skittle alley and short mat bowls room on the first floor, and a meeting room on the second floor. It is also unusual for a village hall in that it is not freestanding and is joined to other buildings to the rear. Before the work was undertaken the building was suffering from damp and heat loss through the single-glazed windows, and was consequently expensive to run.

Sue, (Chair of the Hall Trustees), has a background in local government so, together with the trustees, felt confident to write the business plan with some paid assistance from CCS (Community Council for Somerset) who also assisted with the community consultation and grant applications. In terms of consultants a quantity surveyor (QS) who could also produce drawings was appointed. He listened, was reasonable with fees and money and provided a good service. Initially a new atrium space to be erected on the front of the building was designed but unfortunately the budget did not stretch this far and so this portion of work was omitted.

The lack of space around the building meant a heat pump could not be installed as both ground source and air source types require some outside space to locate equipment. Instead they focussed on other measures to improve the building. The first phase of work saw the installation of 30 PV panels on the roof providing up to around 10kW, installation of new double-glazing, new LED lighting, a new boiler, and other smaller improvements including new flooring, redecoration, and new doors throughout.

The roof was insulated but as the walls are already very thick it was decided that to insulate them would not make sufficient difference to justify the work. A number of rooflights provide natural light into the bowls room, a space which would otherwise be quite gloomy. Following this work the lounge and bar area at the front of the building was updated and a new access ramp installed.

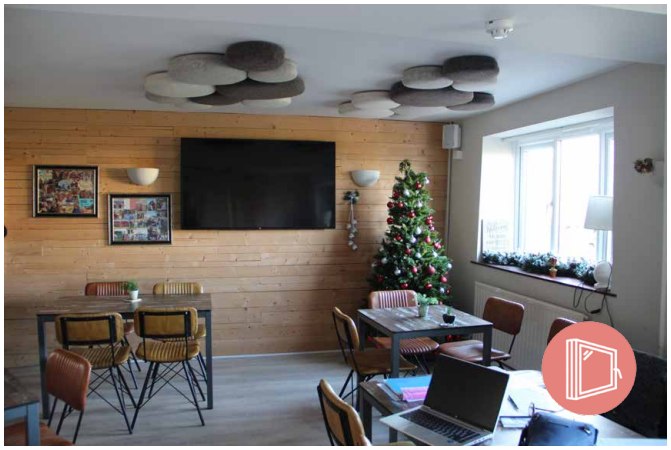
Quotations were obtained from three companies, as are the rules with most funding bodies, and one main contractor, a local firm, was appointed to undertake all the work. They started in July 2021 and completed in July 2022 and did the work under an industry-standard JCT contract. The trustees were pleased to have procured the project this way as it would have been too complicated to co-ordinate the individual trades and the project was delivered on time.

The biggest problem the committee faced was rising construction costs due to inflation post-covid, and as the grant amounts were fixed all that could be done was omit parts of the project in order to keep to the budget. The trustees had asked for contingency sums on the grant applications but most bodies would not factor this in and expected the committee to have its own contingency. When asbestos ceiling tiles were found, and £5,000 was required to remove them, this was outside of any budget and so other work had to be omitted in order to pay for this.

The main hall at Otterhampton is quite small, but a very attractive and comfortable space

Funding and Grants;

- Hinckley Point C Community Fund, via the parish council- £220,000
- Village Hall Improvement Grant Fund (Defra/ ACRE) = £40,000
- Sedgemoor District Council- £10,000
- Fairfield Charitable Trust- £10,000
- Garfield Weston Foundation- £10,000
- Norman Family Charitable Trust- £2,000
- Somerset County Council Carbon Reduction Fund- £1,000
- Parish Council- £400



The updated lounge / bar area

The short mat bowls at first floor level

CONTENTS

FURTHER INFORMATION

USEFUL LINKS

ACRE contact@acre.org.uk

Stagg Architects ben@staggarchitects.co.uk

Your local ACRE member organisation

Centre for Sustainable Energy

Centre for Alternative Technology (CAT)

Community Energy England

Energy Saving Trust - this is mostly about homes but still has lots of relevant information

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