

PPCo

# Thurlaston Chapel Extension

Designed by The Practical  
Planning Company

**BUILD COMPLETED  
AUGUST 2021**



# The project

Thurlaston Chapel, Leicestershire

## BRIEF

Design - and gain planning permission for - a single storey extension to provide space for growing congregation, while enhancing the area and showcasing the original property, its history and character.

## THE CLIENT

The current Pastor (the church is led by elders, one of whom was our client's father who became the pastor, a post he held until three years ago when our client became the pastor).







# The need

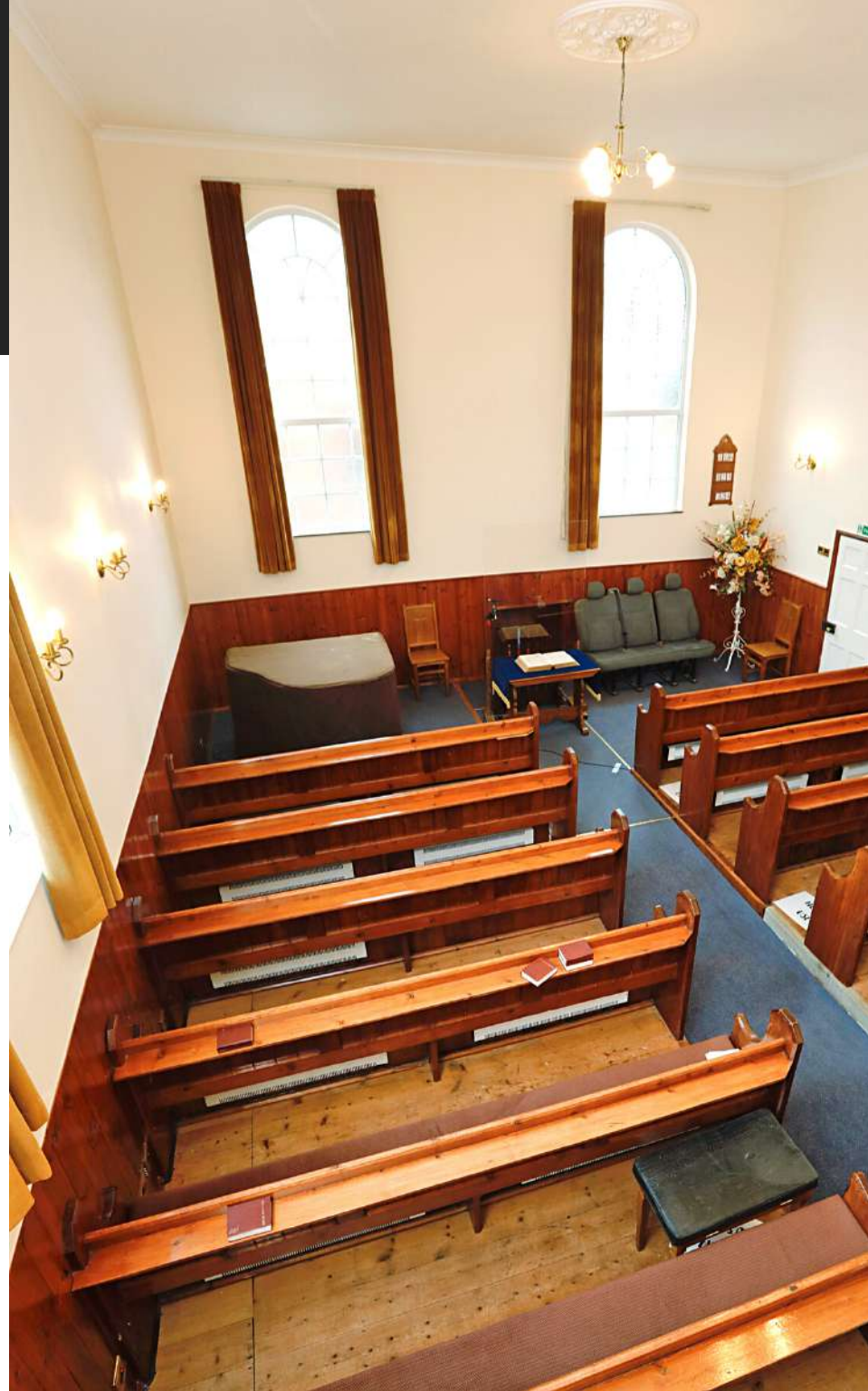
## GROWING CONGREGATION

Thurlaston Chapel had become a growing centre for the community.

The space was required to allow the congregation to continue to grow and the extension plans were a conduit for the growing congregation to enjoy and to enable them to cater better in their events that involve the wider community.

# History of site

- Originally erected in AD1787 and rebuilt in AD1842.
- Current building completed in 1837
- Chapel founded in late 18th century when local farmer became committed Christian and began to invite local preachers to his farmhouse.
- Building bought by Bethel Evangelical church in Wigston in 1978 and extensive restoration began. Amongst that group were our client's grandfather and parents.







# Heritage asset

Although there are no conservation areas in Thurlaston, the Chapel is identified in the Fosse Villages Neighbourhood Plan as a: **“Feature of Local Heritage Interest which, whilst not listed by the Secretary of State, local people feel to be an important part of Thurlaston’s heritage due to its architectural, historic or archaeological significance”**.



# Constraints

- Maintaining and respecting historical significance of site/property.
- Graveyard on site.
- Non-designated heritage asset, requiring heritage statement for planning and considerations from the Historic Buildings Officer
- Limiting impact on street scene where other important buildings are sited.





# The design

## **MATCHING MATERIALS**

Red brick and grey slate tiled roof at similar pitch to that of existing single storey extension to ensure the design was sympathetic to the original property and surrounding area.

## **SIZE**

Ensured the design was not overbearing in terms of size and style.

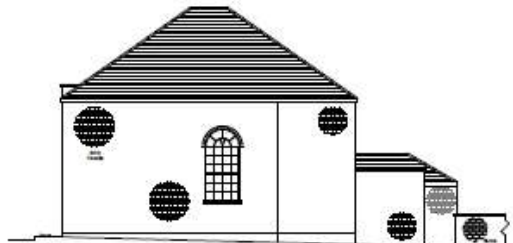
## **LOCATION**

Extending at rear of property, ensuring no impact on street scene.





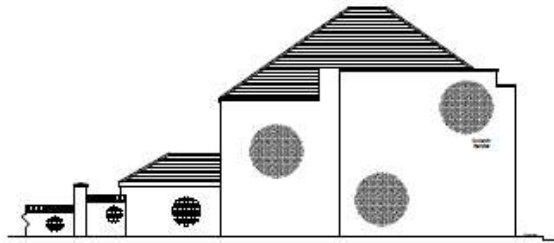
Existing Front Elevation



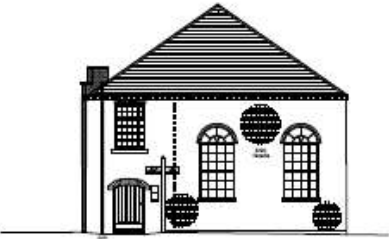
Existing Side 1 Elevation



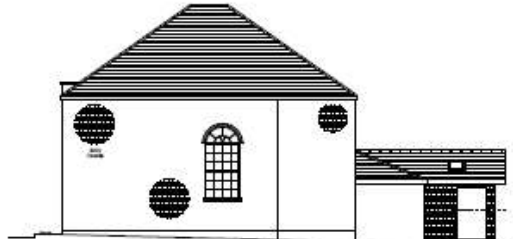
Existing Rear Elevation



Existing Side 2 Elevation



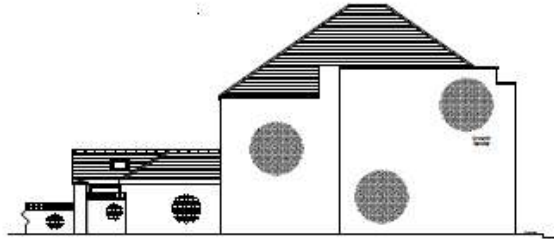
Proposed Front Elevation with Changes



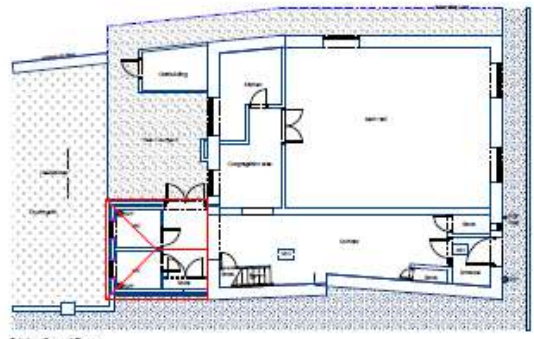
Proposed Side 1 Elevation



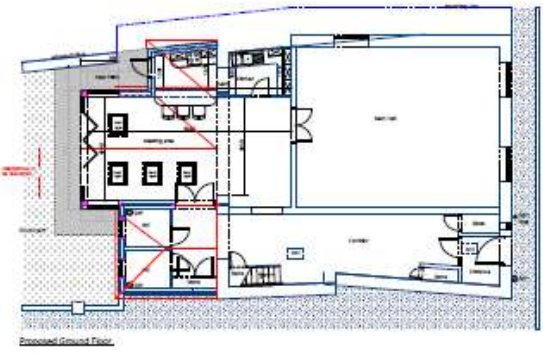
Proposed Rear Elevation



Proposed Side 2 Elevation



Existing Floor Plan



Proposed Floor Plan

Designed by PCCo



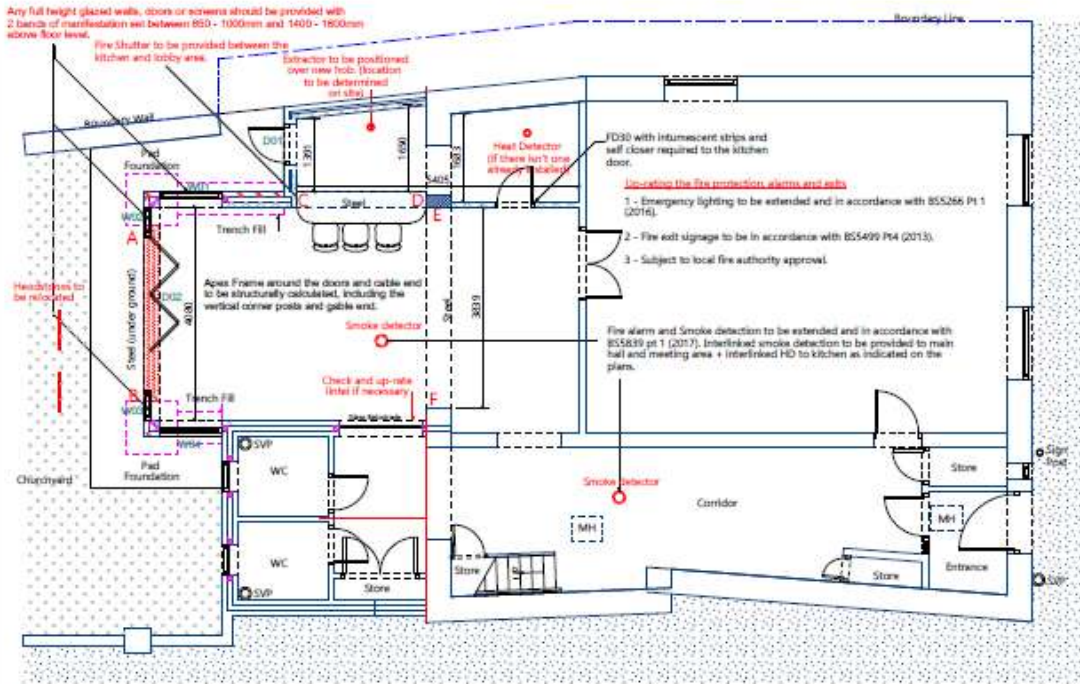


## Main feature

Glass gable end and large glass panels in more contemporary style than existing windows and doors, with grey aluminium frames. Introduced to:

- Frame outdoor space and highlight key feature of the church - the graveyard.
- To allow visitors to see inside the church and the original architectural features of the property,
- Juxtaposition between old and new.





**Proposed Ground Floor**

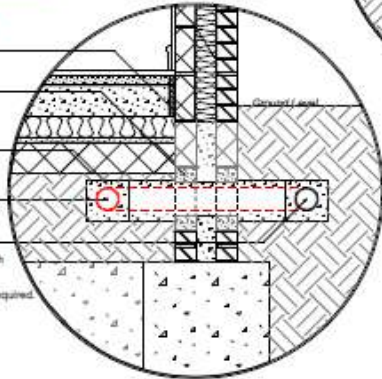
Window & Door Schedule  
 Note: we would recommend ordering the windows & doors once the brickwork has been built up. This way you can double check the measurements and avoid any error.

- W01 - 1195mm (w) x 2100mm (h) with head set at 2.1m
- W02 - 540mm (w) x 2100mm (h) with head set at 2.1m
- W03 - 540mm (w) x 2100mm (h) with head set at 2.1m
- W04 - 1195mm (w) x 2100mm (h) with head set at 2.1m
- D01 - 770mm (w) x 2100 (h) with head set at 2.1m (Minimum of 665mm from the corner or a vertical steel will be required)
- D02 - 3000mm (w) x 2100 (h) with head set at 2.1m
- V01 - 640mm (w) x 1180mm (s)
- V02 - 640mm (w) x 1180mm (s)

**Drainage Protection Detail**

It is unclear if there are pipes running under the new floor, but if there are they will need to be built over.

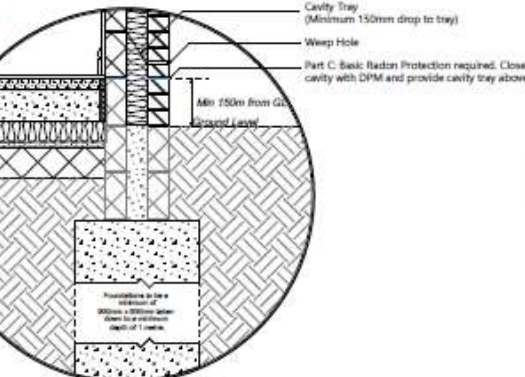
- New Foundation.
- Pre-Stressed Concrete (lets) as drain passes through new foundation.
- 5-14mm granular material or other approved material min 150mm either side and above pipe clearance as pipe passes through earth.
- New Drainage run.
- Assumed existing drainage run.
- Drainage to be agreed on site with the building control officer.
- A build over agreement may be required.



**Foundation Detail**

Pad foundation to be structurally calculated.

- FFL
- 65mm Scream
- 100mm Concrete
- 75mm Insulation
- 1200 Gauge DPM
- 25mm Sand
- 150mm Hardcore



**Structural Calculations**

- STC.1. All structural calculation supersede the design and building control drawings.
- STC.2. If building control has requested structural calculations they must be obtained prior to starting work on site.
- STC.3. All structural calculations to be forwarded on to the BCO prior to commencement of the works.
- STC.4. The structural calculations may affect your design, it is important that these changes are taken in to account before commencing work on site as they can change anything from the size of the foundation to the nb supporting a new steel.

**Foundations**

There may be graves below the floor area of the extension. Depending on the ground conditions a reinforced raft may be required. This is subject to a site inspection. Pad foundations are to be structurally calculated. Prior to commencement of work we would recommend that a trial hole be dug to expose the existing foundations (particularly on the conservatory), and this will also allow one to determine the ground conditions. If ground conditions are suitable then:

- F.1. New foundations to be minimum 900 x 600mm bench fill. Taken down to min depth of 1 metre or to suitable load-bearing strata whichever is the greater. Concrete mix and exact depth to be agreed with BCO (building control officer) dependent on site conditions. Calculations if required to be inspected & certified by BCO.
- F.2. All excavations to be taken down below invert level of drains & below base level of existing foundations. This may be deeper than the minimum foundation depth of 1 metre.
- F.3. Additional protection and depth to foundation if required to be agreed with building inspector on site, and to be confirmed by structural engineer if required.
- F.4. All foundation depths to be checked, inspected & certified as suitable by building control.
- F.5. Foundations built up to boundary's will be essentially loaded and will need to be 750mm wide and with a minimum concrete depth of 1 metre or deeper depending on the site conditions, A303 Reinforcement mesh to be laid top and bottom with 50mm cover to the mesh.
- F.6. All excavations are subject to the proximity of trees, as per NHBC table Chapter 4.2 and to be agreed with BCO.
- F.7. Where existing foundations appear to be other than a concrete strip foundation, please contact the BCO to agree on the course of action, i.e. provide design details for concrete piles or raft etc.

**Ground Floor Construction**

The ground floor can be constructed in either concrete, timber or concrete block & beam depending on the site conditions. Below is the specification for the concrete floor:

- G.1. Solid Floors to consist of 150mm well compacted hard-core and 25mm sand bedding, 1200-gauge DPM to be laid above with 150mm overlap, 75mm Calceol or 125mm Polystyrene with 25mm to perimeter, 500-gauge DPM and a minimum of 100mm concrete screed.
- G.2. All joints in the 1200-gauge DPM to be sealed with vapour resistance tape and the membrane to continue across the external wall to close the cavity and form cavity tray. Insulation boards to be laid break-bonded with joints tightly abutted.
- G.3. Concrete floor to be finished to client's specification which may include underfloor heating, Tiles or a floating timber floor.

**External Walls**

W.1. External cavity walls to comprise of 100mm facing brickwork to match existing, full fill cavity incorporating 100mm Dritherm 32 insulation. Inner leaf to consist of 100mm Calson standard concrete blockwork (to be Calson or equivalent and approved by BCO). Internal finish to be 13mm plasterboard & skim, all to achieve a minimum u-value of 0.28w/m2k.

W.2. Inner and outer walls tied together with 225mm double triangles (or vertical lints) stainless steel non-corrosive wall ties @ max 750mm c/c horizontally & 450mm c/c vertically or to a max of 225mm @ openings. Wall ties to have a retaining clip for securing the insulating to the inner leaf of block work if using PIR insulation.

W.3. Cavities to be closed @ heads, jambs and sills using Thermacore ICC Insulated cavity closures or equal approved. Cavity tray with steep angle, appropriate weep holes to be fitted over all occasional openings not protected by sills. Cavity trays to project 150mm past end of lintels & to be left clear throughout construction.

- W.4. Lean mix cavity fill to be min 225mm below DPC.
- W.5. Eng. 7 brick splash course from 1 course below ground level to top of DPC. 2000 gauge polythene DPC to be min 150mm above finished ground level.
- W.6. Cavity wall insulation to be taken up to meet roof insulation at top of wall, to provide continuous insulation to the building envelope.
- W.7. Insulation within the cavity to be taken below level of insulation in floor structure to ensure continuity of insulation through structure.
- W.8. Internal returns to masonry walls to be min 385mm. No pad stones to breach cavity.

**Drainage below ground level**

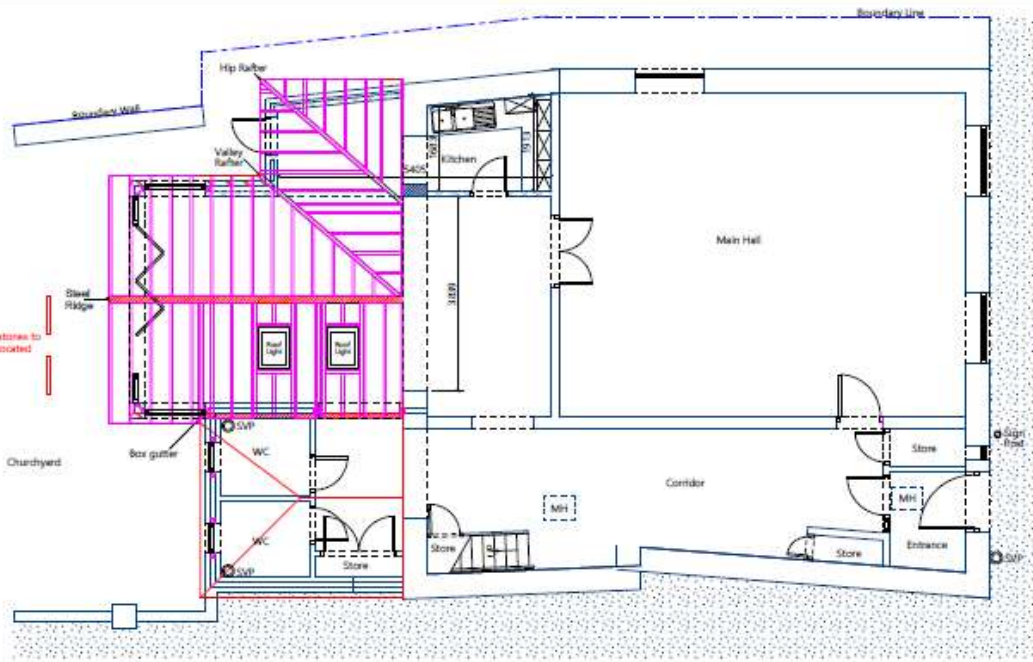
All of the visible/accessible waste drainage has been marked on the drawings. However due to the nature of drains running under ground and being inaccessible it is possible that you can come across one whilst digging the foundations. If this happens you must notify your building control officer immediately and a build over agreement may be required.

- D.1. All drains passing under the building to be protected by bedding, see note D.3. Replaced Drains are to be installed to "Sewers for Adoption Standards."
- D.2. Drains passing through foundations to have weirn screens.
- D.3. Bedding: 200mm of selected fill of 10mm max particle size (no stones over 40mm, no lumps of clay over 100mm, no organic or frozen material). The bedding will create a 100mm layer around the new drainage runs to ensure proper protection to the top and bottom of the pipe.
- D.4. All under-ground pipes to be flexible jointed on approved bed and surrounds and laid to approved falls. Sewer pipes min 1:40 fall. Storm drainage pipes min 1:80 fall. All underground drainage connections to be agreed on site with the building control inspector.
- D.5. Inspection chambers to be 430mm diameter with air tight cover.
- D.6. Rainwater pipes to discharge into 'P' traps and connected to existing storm drainage.
- D.7. Where a WC pan is provided a wash hand basin must accompany for hygiene.
- D.8. Surface water should discharge to a soakaway, situated at least 5 metres away from any building or highway. This can be agreed on site with the building control inspector subject to ground conditions and site restrictions.
- D.9. All the drain runs on the drawings are assumed and will need to be checked and inspected on site. Due to the nature of drains being hidden it may be necessary to deviate from the drawings for new drainage runs. All new runs are to be agreed with the building control inspector on site.

**Drainage Above Ground Level**

- WP.1. All waste pipes to discharge below grating level but above water level in back rise gullies.
- WP.2. Soil vent pipe to finish at least 900mm above any openings into the building within 3m horizontally and fixed with an anti-rot cage. The Cage is to be fixed to the end which does not touch the flow of air. The soil vent pipe is to be fixed with timber/steel collar at any junctions with floors or ceiling if present.
- WP.3. Sinks and showers to have 50mm wastes, wash hand basins to have 32mm wastes. Waste pipes taken to back inlet gullies except where joining SVP where 75mm deep-seal and-vent traps to be used. No waste pipe connection to SVP to be within 200mm of WC connection.

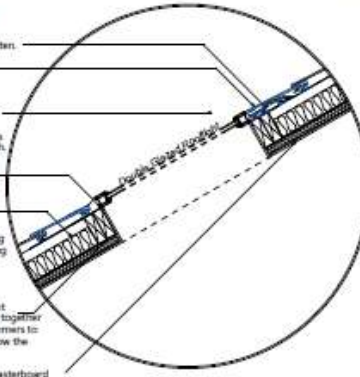




Proposed Ground Floor

**Roof Light Detail**

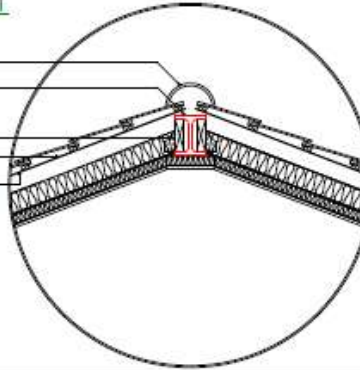
- 38x25mm counter timber batten
- Roof Tile
- Tiling Battens
- Vapour permeable underlay
- Roof light & their flashing kits are to be suitable for the pitch
- Vapour permeable underlay lapped over tiling batten and roof window flashing
- Insulation
- Roof Window and the flashing kit are to be installed following manufacturers instructions
- Trimmer for roof window
- Rafters either side of roof light to be doubled up and bolted together @400c/y's with M12 bolts. Trimmers to be positioned above and below the roof light
- 12.5mm vapour controlled plasterboard



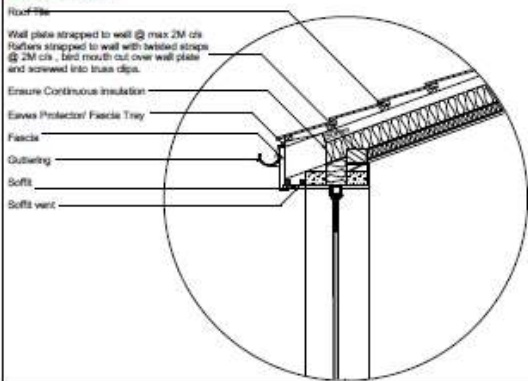
**Steel Ridge Detail**

- Ridge Tile
- Ridge Beam
- Roof Tiles
- Joint Hangers
- Breathable Membrane
- New Rafters Fixed to ridge beam @ 400 c/y using twist nails into new galvanneal joint hangers.

Ridge beam to be Structurally calculated



**Eaves Detail**



- Roof Tile
- Wall plate strapped to wall @ max 2M c/y
- Rafters strapped to wall with twisted straps @ 2M c/y, bird mouth cut over wall plate and screwed into brass clips
- Ensure Continuous insulation
- Eaves Protector Fascia Tray
- Fascia
- Outsiding
- Soffit
- Soffit vent

**Traditional Cut Roof Construction**

Below are the details for the cut roof. The roof rafters & ceiling joists (if applicable) must never be notched or drilled in to run services. Instead the jobs/rafters should be appropriately cut out to allow pipes, cables etc. Appropriate layouts can be agreed on site with the building control officer. The roof rafters/joists can also be counter batted.

Due to the nature and volumes possible on site during construction it is possible that rafters & joists can be undersized. Therefore site measurements must be taken and rafters/joists can be specified from the table below.

RF.1. The roof rafters (C24 timbers) are to consist of the following sizes:-

For spans up to:

150x50mm at 450 centres	3.5m
175x50mm at 450 centres	4.0m
200x50mm at 450 centres	4.5m
225x50mm at 450 centres	5.0m

If deviating from these sizes you must contact the building control officer.

RF.3. Ridge Board to be a minimum of 25mm x 225mm (C24) timbers to allow a connection point at the ridge.

RF.4. 100mm x 75mm SW C24 wall plate to be strapped @ max 2M c/y by 30mm x 5mm galvanneal ms anchor straps.

RF.5. Lateral restraint straps to be provided to gable walls max @ 2m c/y. To be securely fixed to wall & carried over 4No. Rafters/joists. All rafters to be rogged out below restraint straps.

RF.6. Vertical straps anchored to wall and turned over wall plate, min 1M in length and at c/y not exceeding 2 metres.

RF.7. Insulation to be continuous at eaves level and linked to cavity wall insulation to prevent cold bridging.

RF.8. Breathable TYVEK underlay to be secured with stainless steel staples or large headed galvanneal clout nails. TYVEK underlay to be stopped short of fascia and lapped into TYVEK eaves carrier. If using an alternative underlay then it must be installed following the manufacturers guidelines and all details must be forwarded to the building control officer.

RF.9. Interlocking concrete roof tiles or slates to match existing and fixed in accordance with manufacturers instructions on 38mm x 25mm SW battens on min 25mm thick counter battens on TYVEK underlay (universal TYVEK SUPRO to BS 944-101) or equal & approved. Ensure roof tiles and roof light flashing kit suit the pitch of the roof, contractor to check manufacturers guidance to ensure all pitch requirements are met.

RF.10. Code 4 lead flashing are to be chased in 150mm above tiles on adjoining walls and cavity trays to be fitted where possible.

RF.11. If the roof is within 1 metre of the boundary then it must be constructed of non-combustible material and achieve a 30 minute fire protection.

**Roof insulation options**

Due to the nature of the building material market there are a number of different options for insulation. Below is a list of options that all comply with the current building regulations. If deviating from these options you must contact your building control officer.

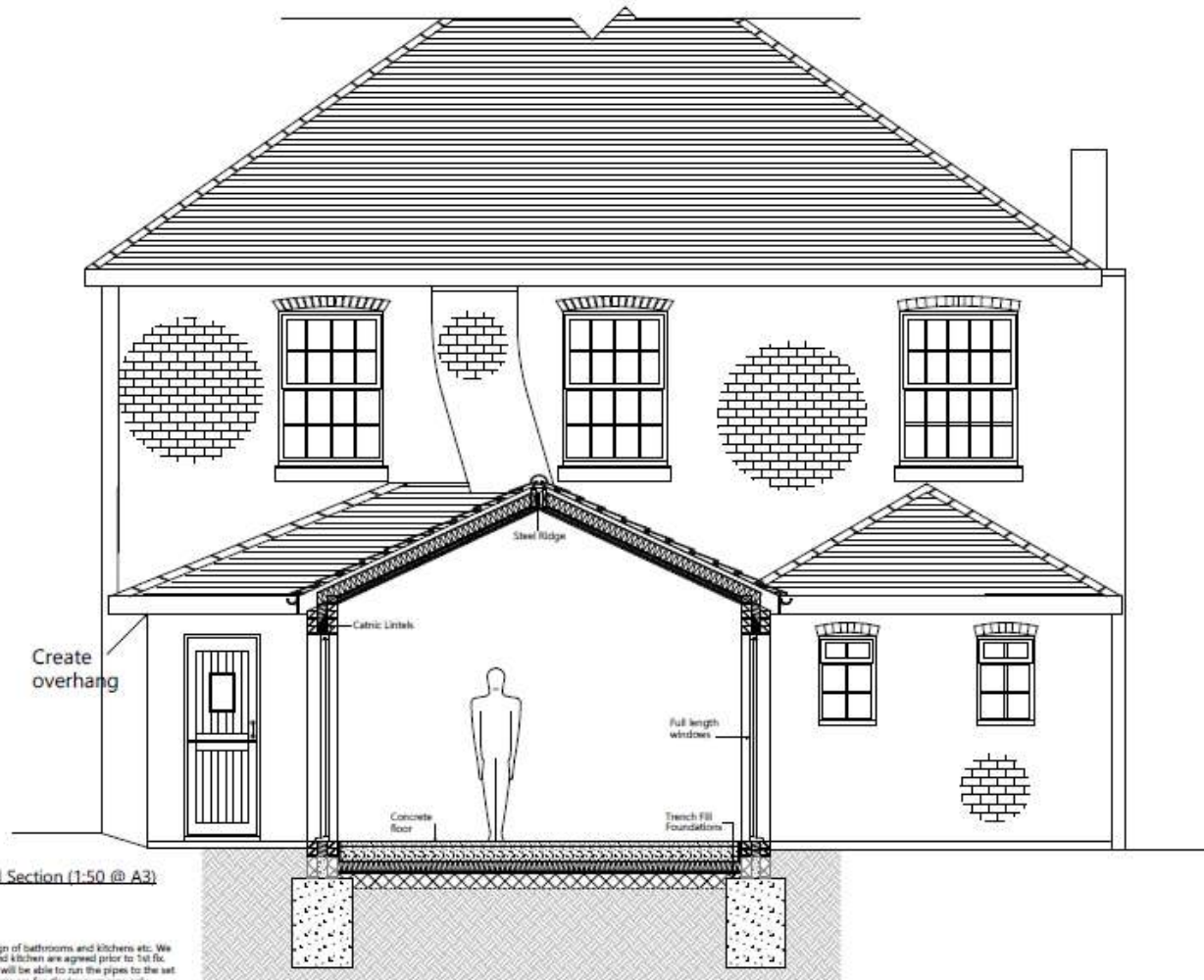
- RI.1. For flat ceilings and loft void - 100mm mineral wool quilt insulation to be laid between joists with 170mm laid across top. Total thickness 270mm to give a total U-value of 0.18 w/m<sup>2</sup> K in mono-pitch roof areas. Joists to be underlined with 12.5mm plasterboard and silted finish.
- RI.2. For Vaulted Ceilings - 100mm Celotex (or equivalent) packed tightly between rafters and underlined with 40mm insulated plasterboard (all joints to be taped) is allowed to give a total U-value of 0.18 w/m<sup>2</sup> K. Ensure a 50mm air space above insulation and use breathable felt under tiles.
- RI.3. For Warm Deck Flat Roofs - 180mm marine plywood screw fixed to the flat roof joists with 125mm Celotex (or equivalent) insulation and 18mm marine ply wood or equivalent screw fixed with minimum 5 x 200mm screws to the top. Finished with an appropriate flat roof covering to comply with BS 6229-3:16.
- RI.4. Insulation to be continuous at eaves level and linked to cavity wall insulation to prevent cold bridging.
- RI.5. If the amount of glazing proposed exceeds the allowable 25% of the proposed floor area, suggest increasing the floor and roof insulation to 150mm Kingspan or similar PIR board, the cavity wall construction to 75mm Jet 9i Kingspan or similar PIR board with 50mm clear air gap maintained and upgrading the spec of the glazing to 1.2W/m<sup>2</sup> K. This upgrade is only acceptable for over glazing up to 30% of the floor area. Anything over 30% must be justified by a heat loss calculation.

**Roof Light Installation**

- RL.1. Roof lights must be installed, along with their flashing kits, according to the manufacturers instructions. All details are to be forwarded on to the building control officer.
- RL.2. New roof lights must be appropriate for the new roof pitch. Specialty roof lights and kits are available for low pitch/flat roofs and all of the manufacturers details must be forwarded on to the building control officer.
- RL.3. Rafters around the roof light are to be doubled up and bolted together at 400c/y using M12 bolts and timber washers.

**Lintels**

- CL.1. Reinforced concrete lintels can be used to create openings in masonry internal walls that are equal to or less than 1.2 metres wide.
- CL.2. If internal structural openings are wider than 1.2 metres then a single span RSJ can be be used. Recommended a 175mm x 102mm UB 18kg for any opening up to 3m, 100mm minimum bearing supported by 3 courses of blue engineering bricks that are 2 bricks wide.
- CL.3. If the opening exceeds 3 metres then the beam will need to be structurally calculated.
- CL.4. Ceramic lintels to be adopted over external window and door openings. Alternatively, if the opening exceeds 3 metres, a steel lintel can be structurally calculated.



Proposed Section (1:50 @ A3)

### Plumbing

The location of pipes on site will depend on the design of bathrooms and kitchens etc. We recommend that outline designs for the bathroom and kitchen are agreed prior to 1st fix. Once outline designs have been agreed the plumber will be able to run the pipes to the set locations ready for 2nd fix. The layouts on the drawings are for display purposes only.

P.1. All hot water taps to be installed on the left.

P.2. Hot water to baths to be limited to a max of 48 degrees

P.3. All hot water systems to be installed and commissioned by a person competent to do so and conformations will be required prior to completion.

### Heating

H.1. Any new heating via gas boiler with balanced flue to be installed by Gas safe registered contractor. A Gas-Safe certificate will be required by the BCO.

H.2. All rooms to have new radiators to be fitted with thermostatic valves.

H.3. Multi fuel burner installations (such as log burners) including the forming of the hearth, appliance installation, couplings, flues & liners and outlets to be carried out and commissioned by a competent HETAS registered engineer. A carbon monoxide alarm will be required in the room in which the appliance is being installed and if the appliance is over 5kw then a suitably sized air brick will also be required. HETAS certificate to be provided on completion.

H.4. If using an alternative heating method such as storage heaters or under floor heating then these must be installed following the manufacturers guidelines and all the information must be forwarded on to the building control officer.

### Smoke alarms

SM.1. Interlinked smoke alarm/ Heat detectors wired to a separately fused mains circuit on all levels, and to conform BS5446. SM.2. Back up batteries to all alarms. Smoke detection and alarms installed in accordance with BS 5839, Part 6, Category D.

SM.2. In addition to an interconnected smoke detection system to hall and landing a heat detector is required to the kitchen.

SM.3. Fire alarm and Smoke detection to be extended and in accordance with BS5839 pt 1 (2017). Interlinked smoke detection to be provided to main hall and meeting area + interlinked HD to kitchen as indicated on the plans.

### Ventilation

V.1. Habitable rooms to be provided with rapid ventilation, equal to 1/20th of the total floor area.

V.2. Trickle vents to habitable rooms to give back-ground ventilation of 8000mm<sup>2</sup> all other rooms to have ventilation of at least 4000mm<sup>2</sup>.

V.3. Kitchen to have mechanical ventilation giving 60 l/s extract rate or 30l/s when adjacent cooker or within a cooker hood.

V.4. Utility rooms require a 30 l/s mechanical extraction.

V.5. Bathrooms, en-suites, cloak-rooms and wet-rooms require 15 l/s mechanical extraction.

V.6. Bedrooms, en-suites, cloak-rooms and wet-rooms without an external window require 15 l/s mechanical extraction with a 15 minute overrun facility.

### Electrical

E.1. Energy efficient lighting to be provided to all fixed lights.

E.2. All electrical work required to meet the requirements of part P (electrical safety) must be designed, installed, inspected and tested by a person competent to do so. Prior to completion the BCO should be satisfied that part P has been complied with. This may require an appropriate IC/ETP electrical installation certificate to be issued for the work by a person competent to do so.

E.3. Switches and sockets to be located between 450mm & 1200mm of the finished floor level.

### Scaffolding

SCA.1. The contractor to provide all necessary scaffolding, propping, shoring, etc. to install beams and their supporting structure as found necessary.

### Windows and doors

WD.1. New windows to be UPVC double glazed frames to achieve a u-value of 1.6 w/m<sup>2</sup>K. Low emissivity coating to be included and glazed units to be a min 12mm apart and filled with Argon gas.

WD.2. One window per room to be designated as means of escape, and to have min unobstructed openable area of 0.33m<sup>2</sup>, min width of 450mm and a height of 750mm. Cill height to be between 800-1100mm.

WD.3. All labels to be left in-situ. Lintel approved by building control authority. All openings to be draught proofed.

WD.4. Trickle vents to be provided to all windows (ref to ventilation note 2).

WD.5. Critical glazing: all glazing within 300mm of a door up to a height of 1500mm and any glazing below 800mm from FFL to be safety glass in accordance with BS6206.

WD.6. Any full height glazed walls, doors or screens should be provided with 2 bands of manifestation set between 850 - 1000mm and 1400 - 1600mm above floor level.

### Stud Walls

SW.1. Structural Stud Walls 100mm x 50mm (C24) timber studs at 400c/c with 12mm plywood boards glued and screwed to one side. Noggins should be placed at 600mm vertical centres 90mm F&I and the wall will need a double head and sole plate. Insulation should be packed tightly between studs. Internal finish to be 12.5mm plasterboard and skimmed.

SW.2. Buttwelting and structural supporting stud walls to be fixed to masonry walls at 450mm vertical centres using Fischer fixings or similar wall ties and have 12mm ply board diaphragm glued and screwed to either side of the stubwork.

SW.3. For timber non load bearing stud walls use 75mm x 50mm (C16) timbers with noggins at 1.2 metres vertical centres, appropriate plasterboard should be screw fixed to each side.

SW.4. Steel stud walls should be installed following the manufacturer's guidance



# The finished extension



## Inside

### **ORIGINAL WALL**

We left the original wall of the previous extension in as feature wall to retain some of the original character.



## Inside

### **GLASS PARTITION**

We added a glass partition between the original entrance hall and the new extension to link the spaces together

# The finished extension



## Inside

### **KITCHEN/BAR**

We created a kitchen area and bar to cater for growing congregation out of the original outbuilding...



## Outside

### **ROOF LAYOUT**

...which we managed to tie into the new extension with a clever hipped roof layout.



# The finished extension



## Outside

### **JUXTAPOSITION**

A blend between old and new



## Outside

### **CONTEMPORARY FINISH**

Grey frames, as approved by the Council, to create a real feature and enhance the property.

# The finished extension



## Inside

### **THE PERFECT FRAME**

Highlighting one of the church's key features - the graveyard - while creating a link to the outdoors for the congregation to enjoy.



# The finished extension



## Outside

### THE FRONT

No change - retaining the historical character and significance.



## Outside

### THE REAR

A contemporary addition, which reflects and honours the character of the chapel.



# Conclusion

The finished extension highlights and defines the property, its architectural features and enhances the green space around the building by creating a better connection between the Chapel and both the green space and graveyard, allowing the congregation to make the most out of these spaces.





# Client satisfaction

“We have been impressed with Ben from the moment we found PPCo online. The pricing was clear and very reasonable in comparison to others. Having now been working with him on our Chapel extension in rural Leicestershire, the value for money has been incredible. Ben's quality of work has been exceptional. And all along the way he has been in constant communication, and is always on hand to respond quickly to enquiries. He took on all the liaising with the council and has gone the second mile with the whole project. A literal heaven send for us – and I wouldn't give praise where it isn't due. Thanks Ben and all your team (PPCo).”

***Peter Harrison, Chapel Pastor***

CARD RECEIVED FROM CLIENT



Dear Ben,  
I hope that you and your family are all well, and that you've had a good summer.  
The extension on the chapel here in Thurlaston is nearing completion. We're hoping to open up the building to the village on the 4th + 5th of September - coinciding with our harvest celebrations.

You are very welcome to come and join us at any point of the weekend. It would be great to see you again.  
Lastly, we wanted to say a big thank you again for all the work you did on our behalf. God has given you a gift for detail & vision.  
Please accept this small token from a grateful church.  
All the best for now, Pete H



