

Donald Insall Associates

Report on Existing Tower Access and Feasibility Study to Improve Access in Tower

Saint Peter's Church
Wrockwardine, Shropshire

January 2014



Contents

- i. Introduction
- ii. Description and Historical Summary

- A Existing Tower Access

- B Feasibility Study
 - Summary of options
 - Access into Bell Ringing Chamber Option 1
 - Access into Bell Ringing Chamber Option 2
 - Access into Bell Ringing Chamber Option 3
 - Supplementary Option 4
 - Access into Belfry
 - Access out onto Parapet Gutter

i. Introduction

We have at the request of the PCC for St. Peter's Church in Wrockwardine, been asked to advise on the feasibility of improving access up through the various floor levels in the Tower. Of particular concern is access to the bell ringing chamber, which is required on a regular basis for church services, practice and as a venue to hold Bell ringing events.

This report documents existing access arrangements and options for improvement. It is intended to act as an initial guiding document for the PCC and external consultants and funding bodies.

Only a brief survey and a visual inspection was carried out, a further more detailed measured survey will be required to develop any of the options. This report does not indicate an approximate cost for the various works, further advice should be sought.

This report prepared by Simon Revill Architect GradDipCons. of our Shrewsbury office.

ii. Description and Historical Summary

The Church of St Peter is a Grade I listed building.

The following is an extract from the Quinquennial in March 2012.

The Church is built mostly of red and buff sandstone, with clay tiled roofs and stands prominently on the top of a hill in the centre of the village.

The cruciform plan of Nave, Chancel, North and South Transepts and central Crossing Tower emerged in the late Norman period, with alterations to the west end of the Nave and east wall of the Chancel in the Decorated period, together with raising of the Tower. Further alterations in perpendicular style took place to the Transepts, including the building of the north (Cludde) and south (Pemberton) Chapels in the late 14th and early 15th centuries. In 1854 the Church underwent what Dean Cranage refers to as a 'rather "drastic" restoration by Mr Christian'. This included renewal of several windows and formation of the two small doors in the Pemberton Chapel which is now the Vestry.



Fig. 1
East axis looking
towards the altar.

A. Existing Tower Access

Summary

Access is from the east Vestry up through the Vestry loft space, from this area the route exits through a dormer out onto a platform over a valley gutter between the Chancel and Vestry. .

Carefully up around the buttress and along the Chancel valley, the route ascends up a steep flight of steps to enter the tower in the Clock Chamber gallery (3rd floor).

The bell ropes are located on the level below and only via a steep flight of steps and the Belfry is accessed up a hazardous step ladder. To gain access into the Belfry from the step ladder, a trap door is opened.

From the inside the Belfry, the parapet gutter is accessed up a stone spiral staircase in a turret located on the north west corner of the tower.

The following pages provide an illustrated guide with a brief analysis.

East Vestry to Vestry First Floor

Fig 2 (left) Access door and staircase from ground floor east Vestry at the start of the route.



Fig 3 (bottom left) At the top of the first flight of steps in Fig. 2 is a store cupboard. There is no quarter landing and a second flight rises up to the first floor roof space in the east Vestry. A substantial timber tie beam that forms part of the roof truss is located adjacent to the separating wall between east Vestry and Organ Chamber (fig. 4)

Fig 4 (bottom right) From the staircase in the loft leads to a door in a dormer roof, opening via a short flight of uneven and steep steps. Through the door is an external platform – see next sequence.

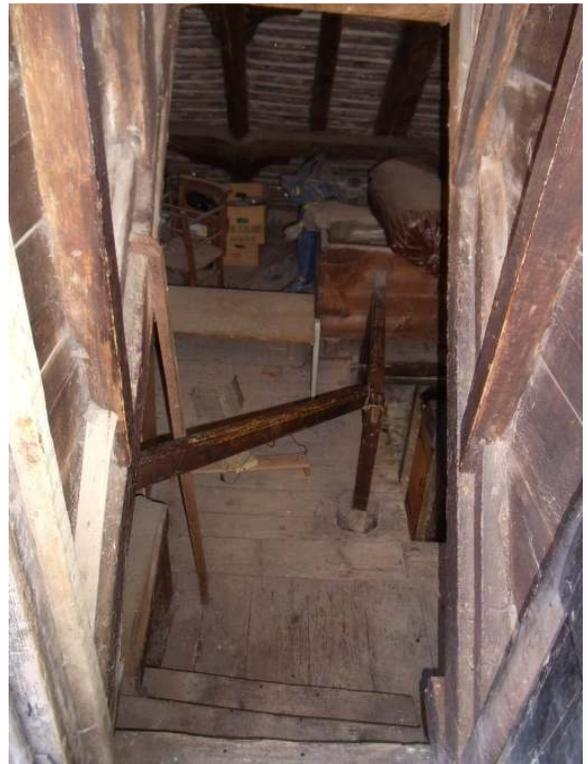
Analysis

The door in fig. 2 has a strong closer and it is difficult for elderly and younger people to operate. The steps are evenly spaced and of sufficient tread width.

There is no quarter landing between the lower flights and whilst this is sufficiently safe for those that are aware of the arrangement, the situation is not ideal.

The tie beam presents an obstacle and potential for injury to those unaware or otherwise distracted.

Steps leading to the external door are steep, twisted and with no landing area to the door.



Roof Space to East Tower Door



Fig 5 (left) Dormer with external door from east Vestry; the door swings to right and head height is limited. Access continues to the left onto narrow platform ledge.

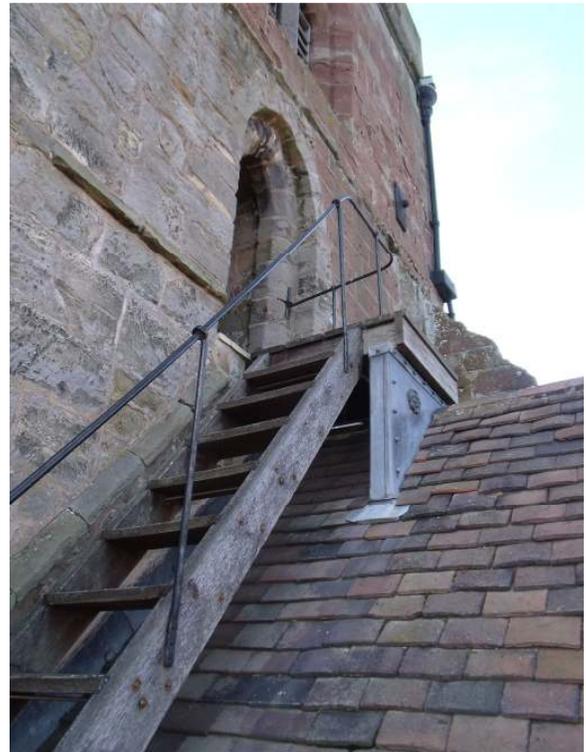
Fig 6 & 7 (bottom left) The narrow platform ledge leads onto steps that form the fabric of the buttress. The valley gutter between east Vestry and Chancel can be seen in fig. 6 between the clay tile roof slopes. Over the buttress a narrow platform along the Chancel valley leads to the start of a steep ladder stair to the Tower door.

Fig 8 (bottom right) Top of ladder stair lands over ridge of chancel. From the landing and through a narrow opening in the Tower, a few stone steps lead into the Clock Chamber gallery at 3rd floor level (see fig. 9 next page)

Analysis

The extremely exposed route is slippery, narrow, steep, uneven and winding. Minimal balustrade offers handrail support only and inadequate if a person was to slip. Anti-slip coverings on the floor surfaces are inadequate in places or only help in a single direction of travel.

There is no enclosure which makes the route unpleasant and hazarderous in inclement weather.



Tower Door to Bell Ringing Chamber



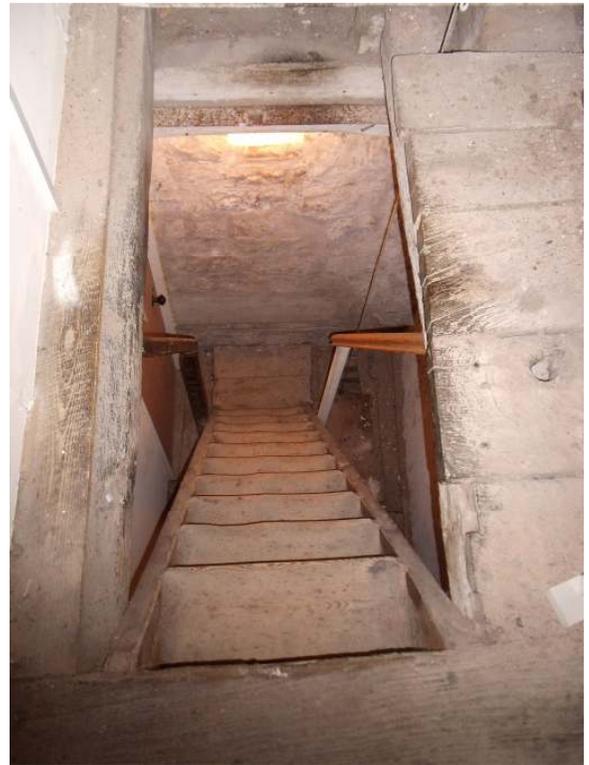
Fig 9 (left) Access into the Tower is from the east at 3rd floor level, through a narrow door (circa. 550mm) with limited head height and a stepped threshold. The white plasterboard seen to the right forms the upper partition to the Bell Ringing Chamber below.

Fig 10 (bottom left) The step ladder in fig 11 is reached via a narrow corridor adjacent to the clock cupboard.

Fig 11 (bottom right) The floor level of Bell Ringing Chamber is reached by descending down a steep stair at the north west corner of the tower.

Analysis

To access the Bell Ringing Chamber users must ascend up over the chamber to the 3rd floor Clock Chamber gallery, only to descend again back down to access the ropes



Tower Door (3rd Floor) to Belfry (4th Floor)

Fig 12 (left) A steep step ladder rises up over the ladder down to the bell ringing chamber; there is no guarding. A metal tie bar penetrates through the ladder which is a substantial obstacle in order to safely climb.



Fig 13 (bottom left) Whilst avoiding the tie bar, users must be careful to avoid the diagonal timber tie beam (lower right of fig 13). The 4th floor Belfry is accessed through a hatch in the floor.

Fig 14 (bottom right) The access hatch can be seen in the lower middle of fig 14. Access onto the external parapet gutter at the top of the tower is through the metal doorcase via a stone spiral staircase in the tower turret.

Analysis

Access to the 4th floor Belfry is reasonably simple for able bodied people, given access is only required for periodic maintenance.

However, the location of the ladder over the opening to the bell ringing chamber means there is a high risk of serious injury. The likelihood of falling is greatly increased by way of simultaneously avoiding the metal tie beam and timber tie beam over. There is greater risk of injury

Given those that periodically access the upper reaches of the tower are of the older generation, the current hazards present some difficulty.



Belfry to External Parapet Gutter



Fig 15 (left) Through the metal door in fig 14 is a narrow stone circular stair, of a historic type to be expected. There is no handrail, however the level of ascent is not too great and the top tread provides a ledge for support.

Fig 16 (bottom left) The staircase is not enclosed only protected by a timber framed mesh screen. Difficulty arises from method of removal and refitting, where the only foothold is on the top tread and threshold.

Fig 17 (bottom right) Top of turret staircase, opening onto parapet gutter. Access is narrow and the embrasure of the crenellations is immediately following the turret; this provides little means of guarding. Once removed the mesh screen further reduces foot space.

Analysis

As noted in the previous page, access is only for periodic inspection and general gutter maintenance.

The lack of guarding makes access onto the parapet gutter hazardous and the mesh screen makes the process unnecessarily difficult.



Bell Chamber Access Feasibility Study

– Summary of Options

The following options to provide an alternative access into the Bell Ringing Chamber have been identified:

1. Make improvements to existing arrangement by new staircase and platform out of east Vestry and over Chancel roof valley . Create new opening in Tower to south east corner of elevation. Enclose external steps and platform with new lead lined dormer.
2. Re-open existing blocked up opening between east Vestry and Organ Chamber. Install new staircase and reorder Organ Chamber to provide new gallery first floor. Make new opening through south Tower wall into Bell Ringing Chamber.
3. Install lift in Organ Chamber and provide access through new opening in south elevation of Bell Ringing Chamber.
4. Supplementary Option:
Omit need to access the Bell Ringing Chamber by extending ropes down to ground floor, through floor of Bell Ringing Chamber. Provide means to tidy ropes away when out of use.

Alternative options to those shown have been considered but rejected, for the following reasons:

- Adverse impact of external enclosure on setting of Grade I listed building.
- Loss of historic fabric, particularly timber framing to East Vestry roof and infill stonework of tower archways.
- Option to make alternative access by making new openings in Buttresses at roof level rejected, due to potential impact upon structural mechanics of Tower.

Option 1

Enclose and Remodel External Access Route

Make improvements to existing arrangement by introducing a new staircase and platform out of the east Vestry loft and over the Chancel roof valley. Create new opening in Tower to south east corner of elevation. Enclose new access way with new lead lined dormer.

Key Benefits

- Requirement for 'up and down' arrangement to and from Clock Chamber gallery is removed.
- Opportunity for practice of bell ringing to benefit wider age groups.
- Opportunity for bell ringing groups from regional, national and wider areas to access facilities.
- An external enclosure protects from inclement weather and from falling at roof level.
- Cost effective option.
- Potential to combine with Supplementary Option 4 to make bell ropes accessible at ground floor.

To Note

- Impact upon setting of church may be considered high from the public highway.
- Some historic fabric will need to be removed from east Vestry and support for new platforms will be required on existing timber and masonry fabric.

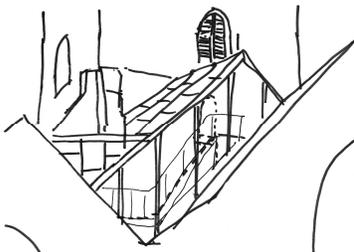


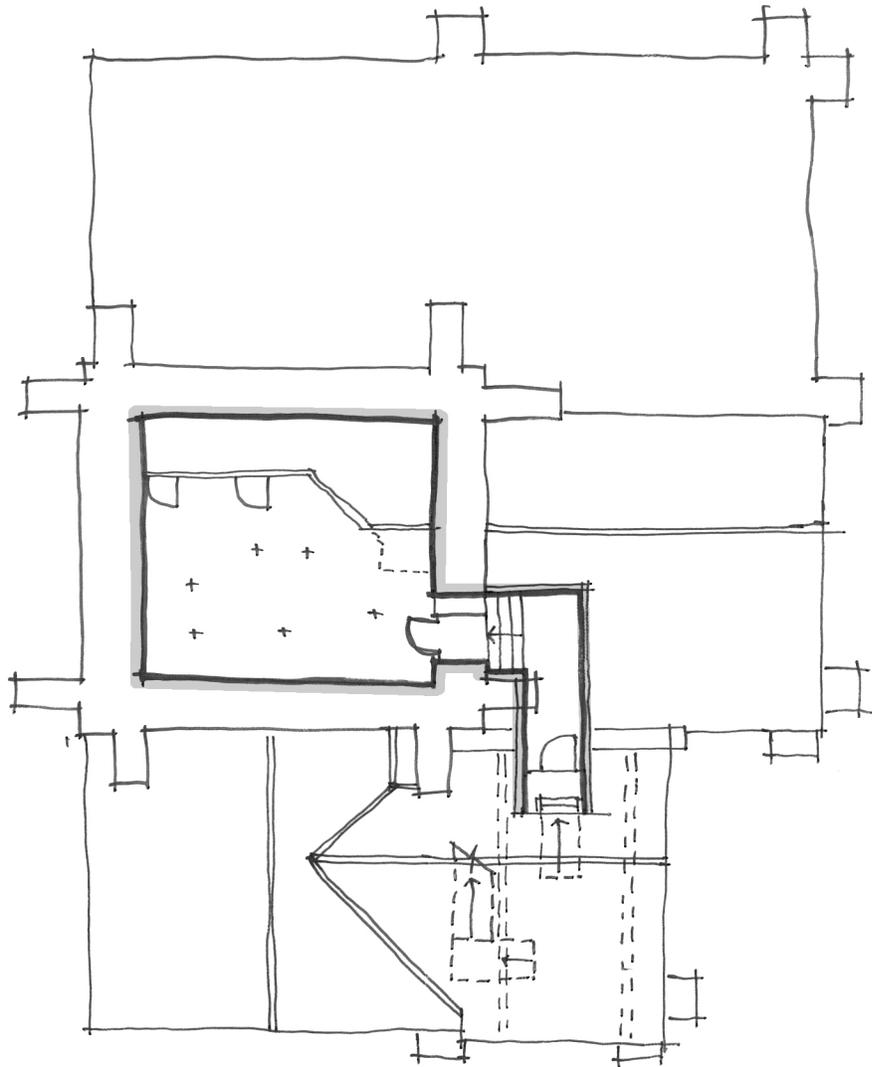
Fig.18 (top). Indicative sketch of how enclosing all of the existing access platforms and steps may look. This will be of unacceptable visual impact and has been disregarded from the option.

Fig.19 (right). Sketch Perspective of lead lined enclosure.

A new dormer (shaded in grey) is created to provide safer and enclosed access into Bell Ringing Chamber.



Plan through New Dormer from East Vestry Loft



**Fig. 20 Plan at Dormer access
and Bell Ringing Chamber
level**

Existing staircases in east
Vestry are dashed. A new
staircase is constructed between
east Vestry the roof trusses
affording access onto a new
platform

Outline sketches only,
not to scale

Option 2

New Internal Staircases and Opening in South Tower Wall

Re-open existing blocked opening that forms storage cupboard between east Vestry and Organ Chamber. Install new staircases and reorder Organ Chamber to provide new gallery first floor. Make new opening through south Tower wall at top of staircases to provide access into Bell Ringing Chamber.

Key Benefits

- Access to Bell Ringing Chamber is made internal with safer, much simplified staircases.
- Opportunity for practice of bell ringing to benefit wider age groups.
- Opportunity for bell ringing groups from regional, national and wider areas to access facilities.
- An external enclosure to existing access platform and step ladders is avoided; therefore potential impact upon setting of the church is mitigated.
- Organ Vestry is reordered to provide more useable space on ground floor with new organ layout.
- Intermediate gallery floor may be introduced in Organ Vestry as integral part of works, to provide additional flexible function space.
- Gallery floor and screen may be designed to improve thermal comfort in colder Organ Vestry transept.
- Potential to combine with Supplementary Option 4 to make bell ropes accessible at ground floor.

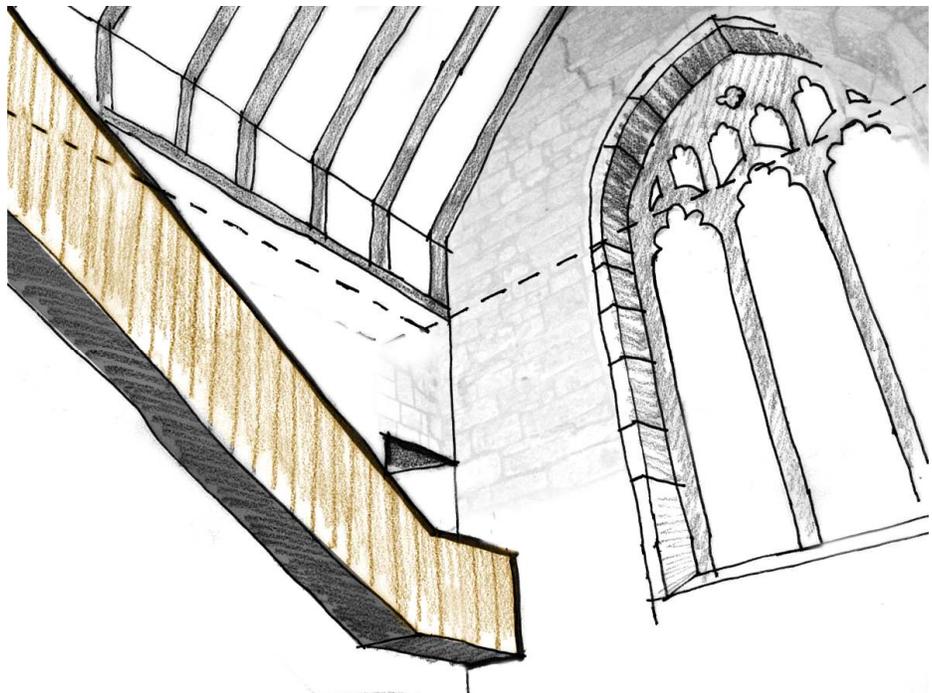
Fig. 21 Outline sketch perspective

Existing blocked up opening is reopened and new oak stair is constructed, rising to new gallery floor (dashed).

Access to stair is from existing east Vestry.

From gallery floor, a spiral staircase rises to a new opening in the south Tower elevation, to provide access into Bell Ringing Chamber.

New gallery floor may be reduced to only form balcony access to upper spiral staircase.



Section through Organ Chamber looking North

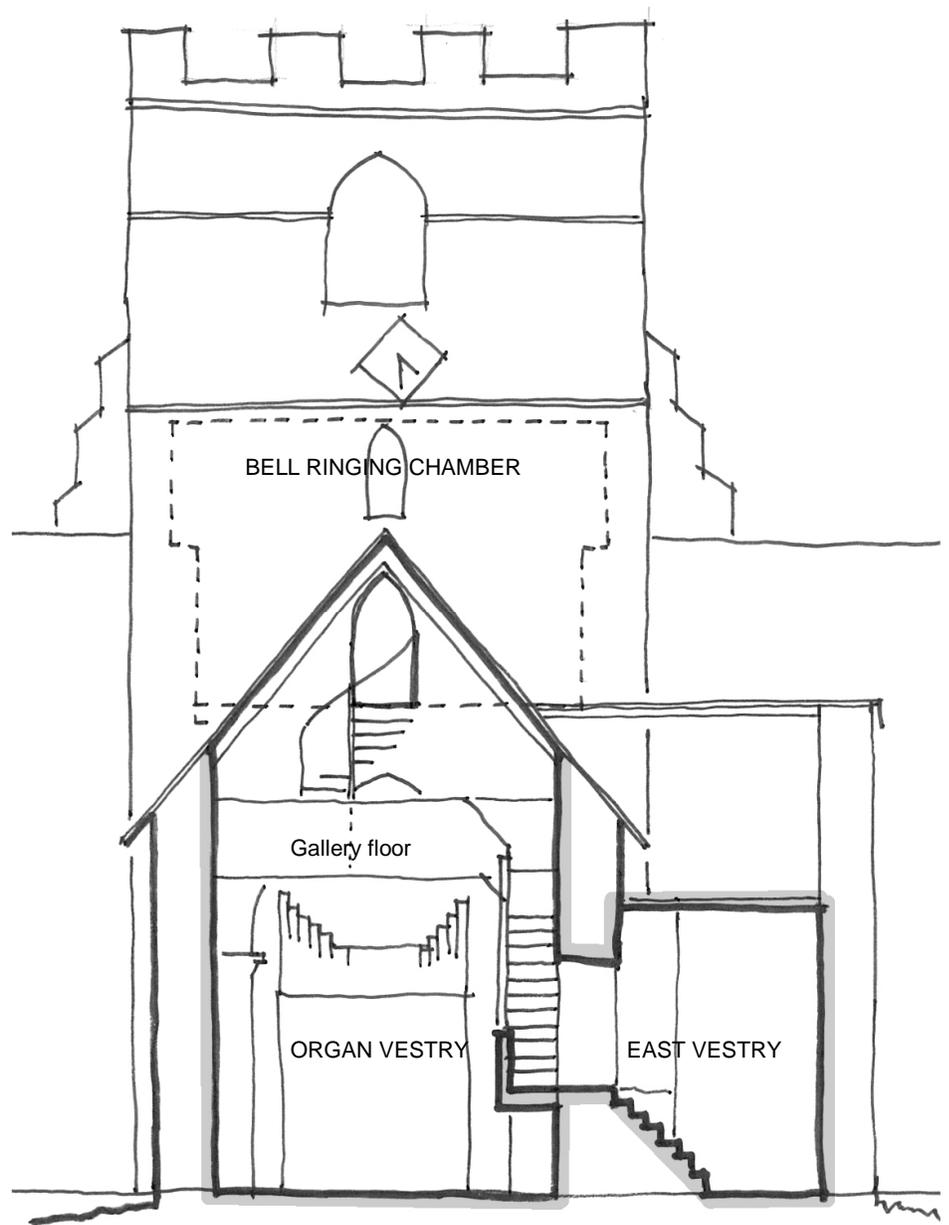


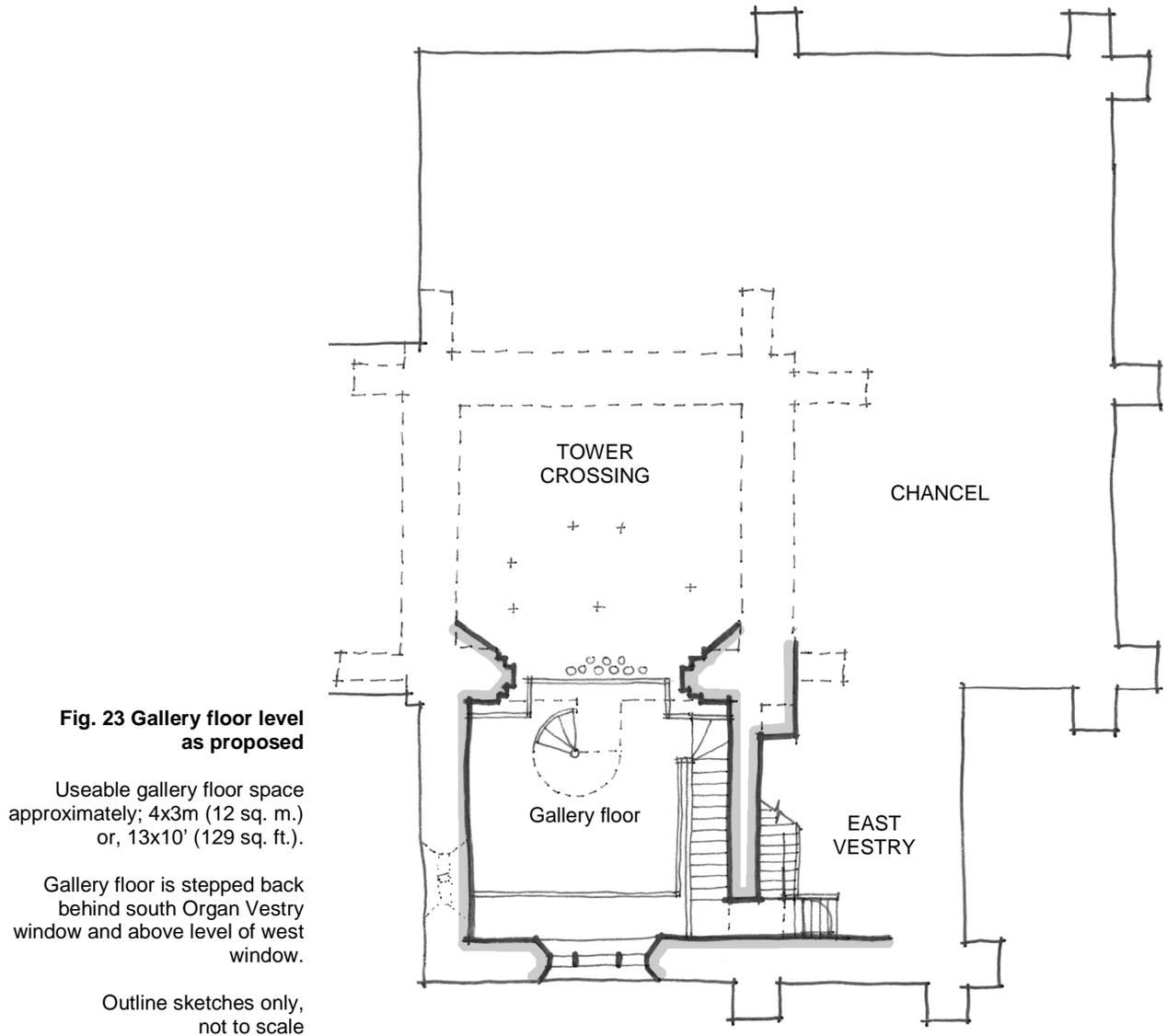
Fig. 22 Section through Organ Vestry as proposed

Section shows access to new staircases from existing east Vestry staircase.

From the gallery floor or balcony, a spiral staircase rises to a new arched opening at Bell Ringing Chamber level.

Outline sketches only,
not to scale

Plan at New Gallery Floor Level



Section through Tower looking East

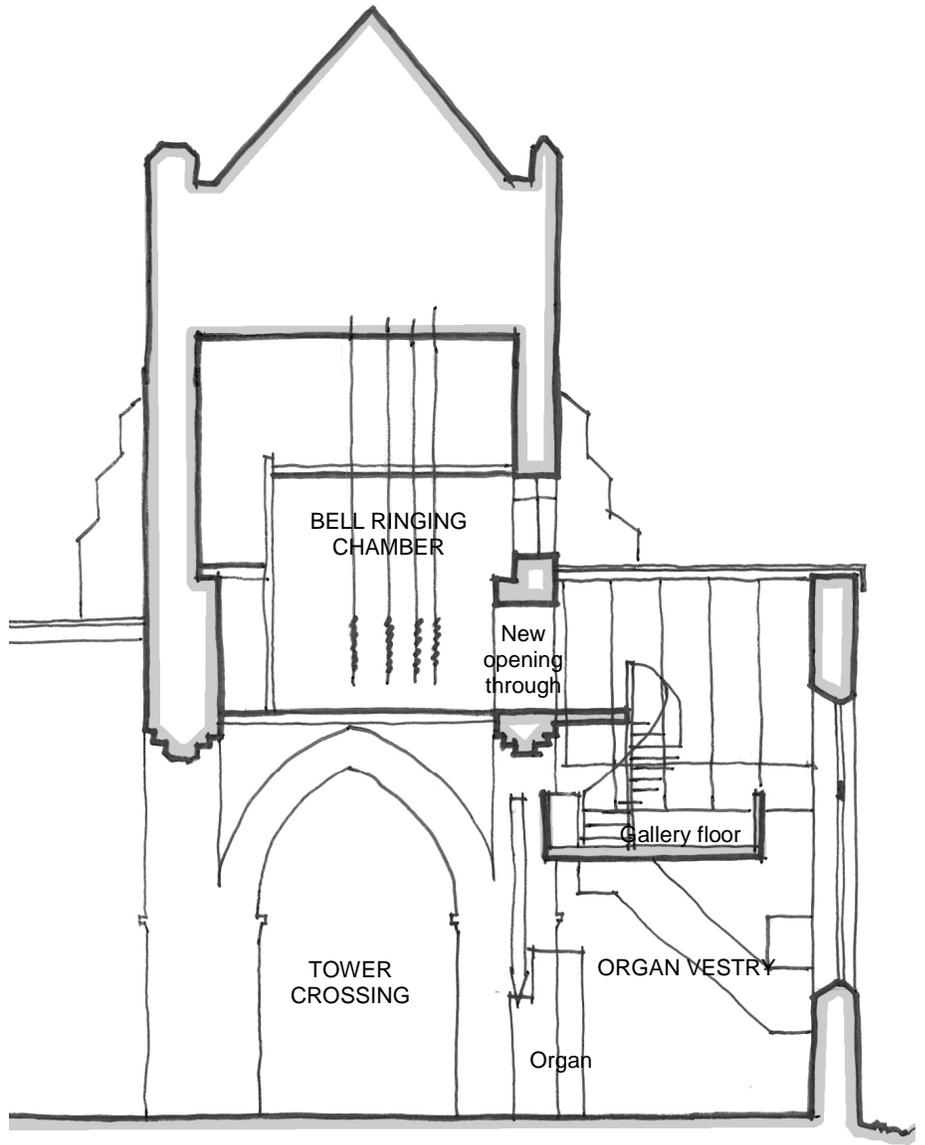


Fig. 24 Section through Tower and Organ Vestry as proposed

Organ and gallery floor separates Tower Crossing area from Organ Vestry, to form screen in order to reduce cold draught.

Outline sketches only, not to scale

Plan at Bell Ringing Chamber Floor Level

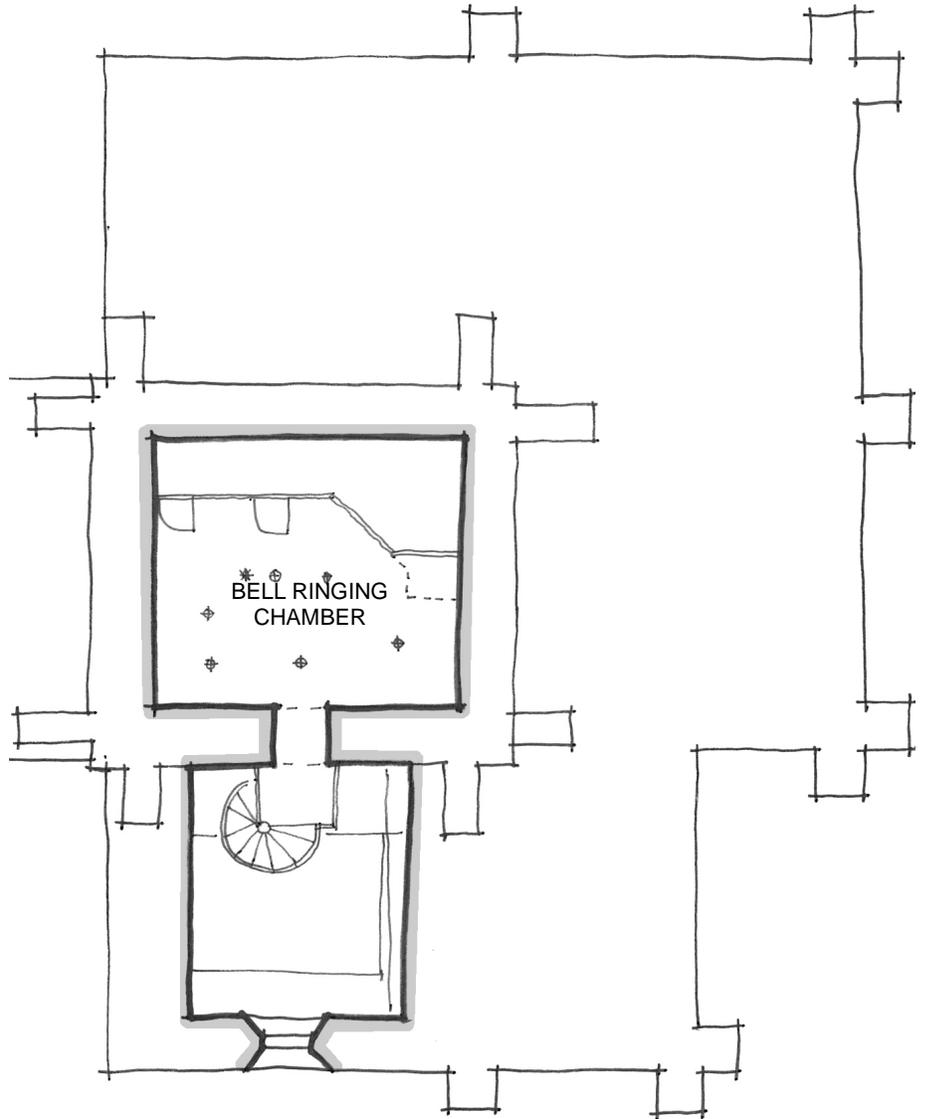


Fig. 25 Bell Ringing Chamber floor level as proposed

Bell Ringing Chamber is accessed through new opening in south elevation, from spiral staircase.

Outline sketches only, not to scale

Option 3

Installation of Lift in Organ Chamber

A lift will provide direct and easy access for all into the Bell Ringing Chamber. The lift shaft could be boarded in oak to hide mechanism, complimentary to new lobby and toilet facilities. A new opening is created in the south Tower elevation from the top lift landing, in a similar manner to Option 2.

Key Benefits

- Opportunity for practice of bell ringing to benefit wider age groups.
- Minimal loss of historic fabric, however installation may disturb archeological evidence in order to provide lift pit and hydraulic shaft.
- Possibility to reorder Organ Chamber as part of works.
- Opportunity for bell ringing groups from regional, national and wider areas to access facilities.
- The need to create an external enclosure to existing access platform and step ladders is avoided; therefore potential impact upon setting of the church is mitigated. External enclosure to provide additional head height is made over most discreet area of the south elevation which appears to be above the Organ Chamber.

To Note

- The liability to the PCC for maintenance costs of lift equipment once installed may render this option unfeasible in the long term.
- Gallery floor may be introduced in Organ Chamber, similar to Option 2, in order to maximise use of lift and project viability.
- Alteration to the Organ Vestry roof trusses is required in order to provide adequate head height for lift shaft.

Plan at Bell Ringing Chamber Floor Level

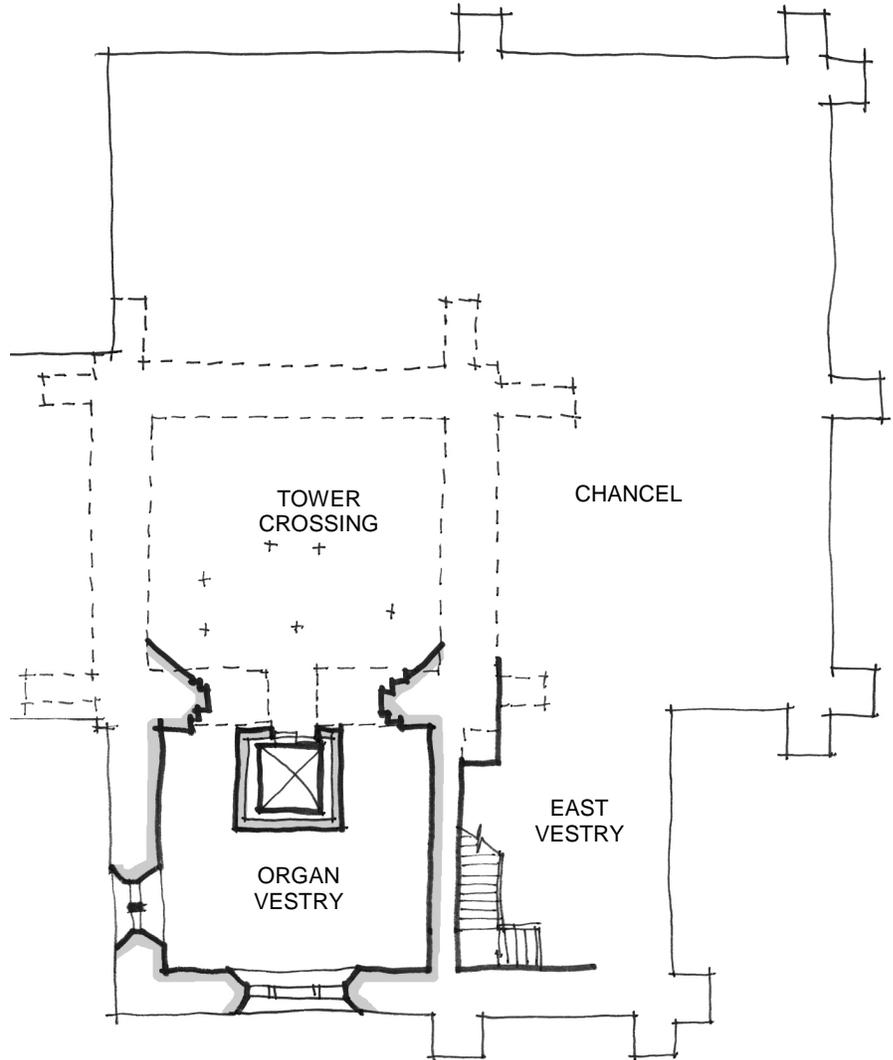


Fig. 26 Organ Vestry floor level as proposed

Access into the lift is from Tower Crossing. Work to relocate organ is most likely required.

Section through Tower looking East

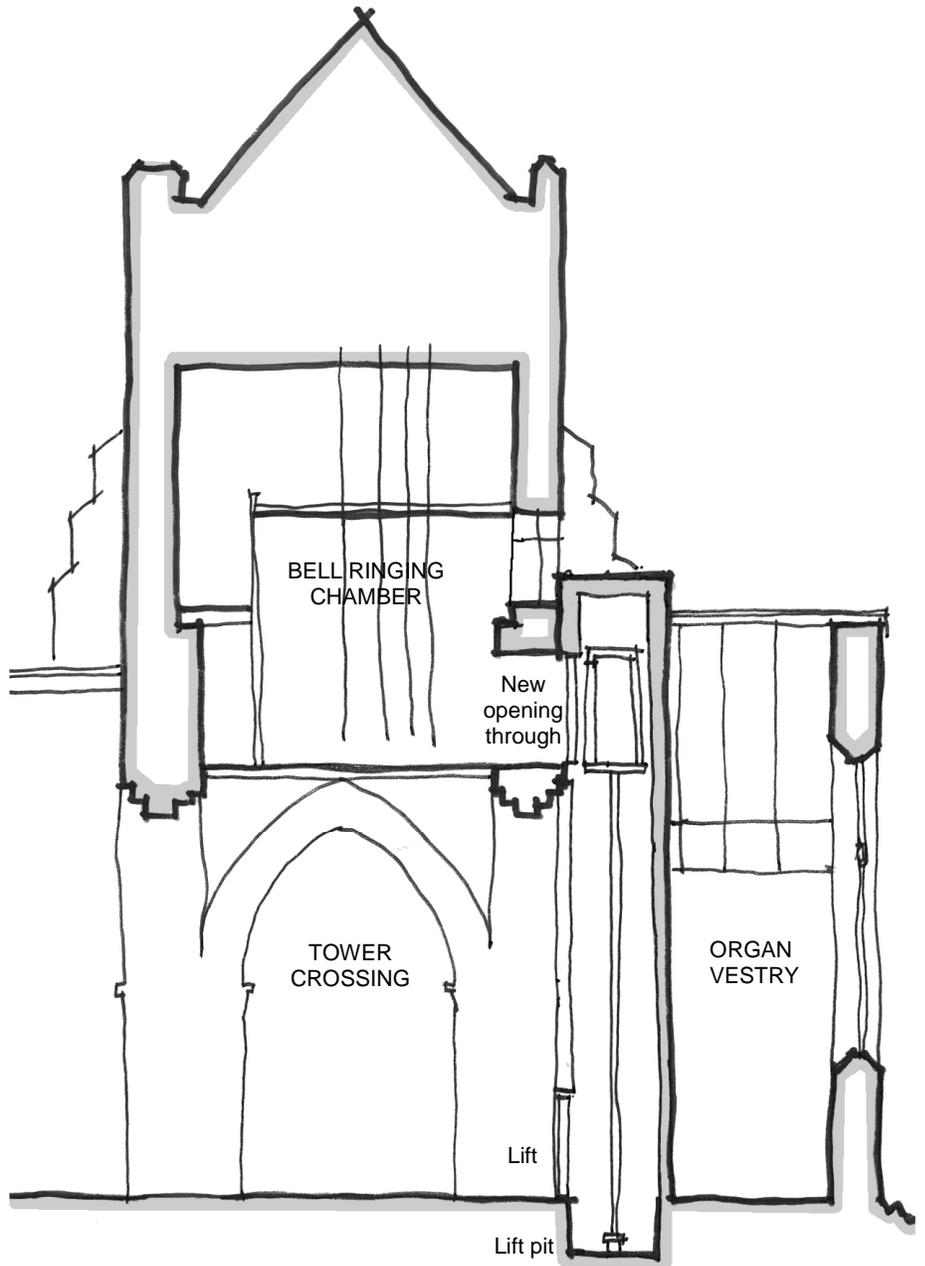


Fig. 27 Section through lift shaft as proposed

Excavation in floor for lift pit and hydraulic shaft is required. Further head height must be created for lift shaft by alteration of rafters near the Tower and creation of lead dormer roofs.

Supplementary Option 4

Extend Ropes Down to Ground Floor Crossing

Reduce the need to access the Bell Ringing Chamber and extend ropes down to ground floor through floor of Bell Ringing Chamber, to enable ringing from transept crossing. Provide facility to stow ropes away out of use.

Key Benefits

- Necessity to ascend to Bell Ringing Chamber is negated, except for formal occasions such as weddings.
- Opportunity for practice of bell ringing to benefit wider age groups.
- Opportunity for bell ringing groups from regional, national and wider areas to access facilities.
- Potential to combine Options 1 and 2 to provide greater access to all.

To Note

- Bell ringing from ground floor Tower Crossing may not be considered appropriate during formal occasions such as weddings. Where bell ringing is required for such occasions access via the existing arrangement will be required.
- Improvements to the existing arrangement and an external enclosure is still required to address other safety concerns; this will potentially have an impact upon setting of the church.
- Minimal intervention to historic fabric, however method of stowing ropes away will need to be explored



Fig. 28. Sketch Perspective of Option 1.

Ropes are extended to reach ground floor to facilitate easy and convenient use for all, for example during bell ringing practice.

During formal occasions for example weddings, ropes may be retracted high up to ceiling and rung from existing chamber.

When not used, ropes may be retracted or wound into existing Bell Ringing Chamber.

Access into Belfry

Key Points

- Options for an alternative location of ladders, to provide access into Belfry is restricted due to clock housing and partition with Bell Ringing Chamber.
- Provision of step ladder to Belfry is assumed to be a suitable method of access, for occasional and periodic maintenance purposes.
- Diagonal timber tie beam, Belfry floor beam and metal tie rods above must be avoided to improve safety.
-

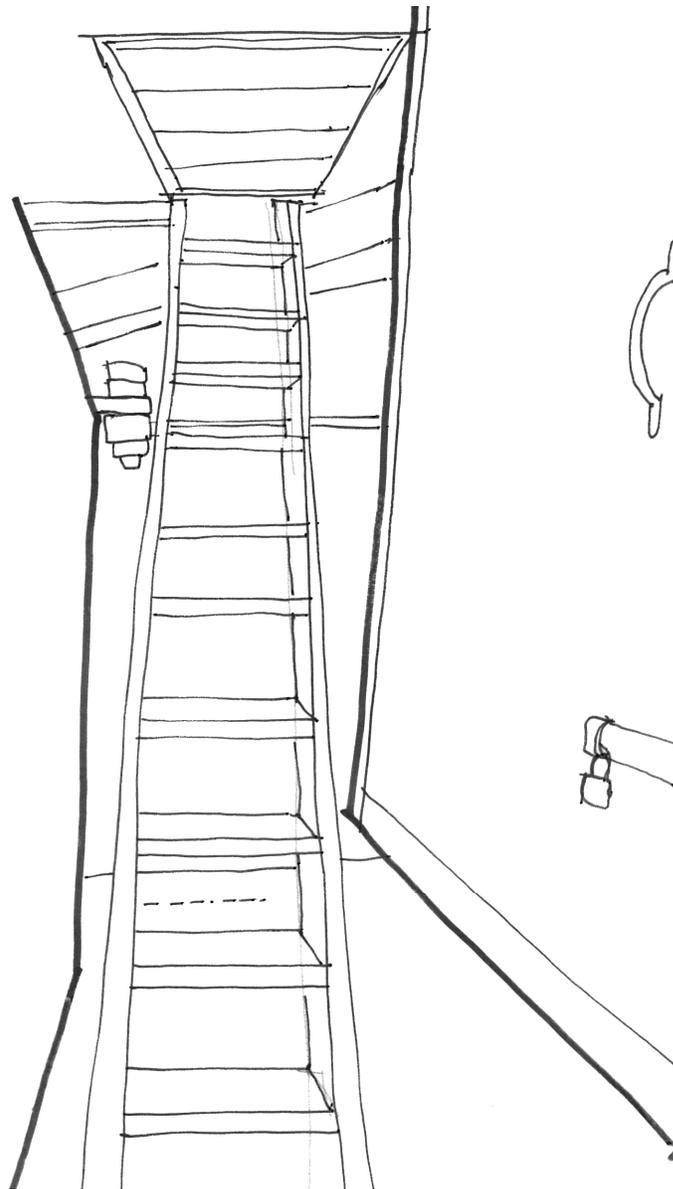
Proposal

- Turn ladder 90 degrees and to ascend east to west, over location of existing down ladder to Bell Ringing Chamber. Note, a retractable ladder must be used alternative access down to Bell Ringing Chamber is not made.
- Location of existing trap door may require moving east, in order to avoid tie beam and other structure.



Fig. 29 (top) Reference photo showing existing arrangement.

Fig. 30 (right) Alternative orientation and location of step ladder to Belfry



Access out onto Parapet Gutter

Key Points

- Provision of existing spiral staircase out onto parapet gutter is assumed to be a suitable method of access, for occasional and periodic maintenance purposes.
- Spiral staircase exposed to the weather with no means to drain water at base of stair.
- Low level guarding at external top landing of stair
-

Proposal

- Replace existing mesh screen with timber louvered door on hinges. Guarding is provided by door opening towards crenellations. Stairwell is protected from weather and is ventilated is by louvered design. Bird mesh on inside face protects stairwell from nesting.

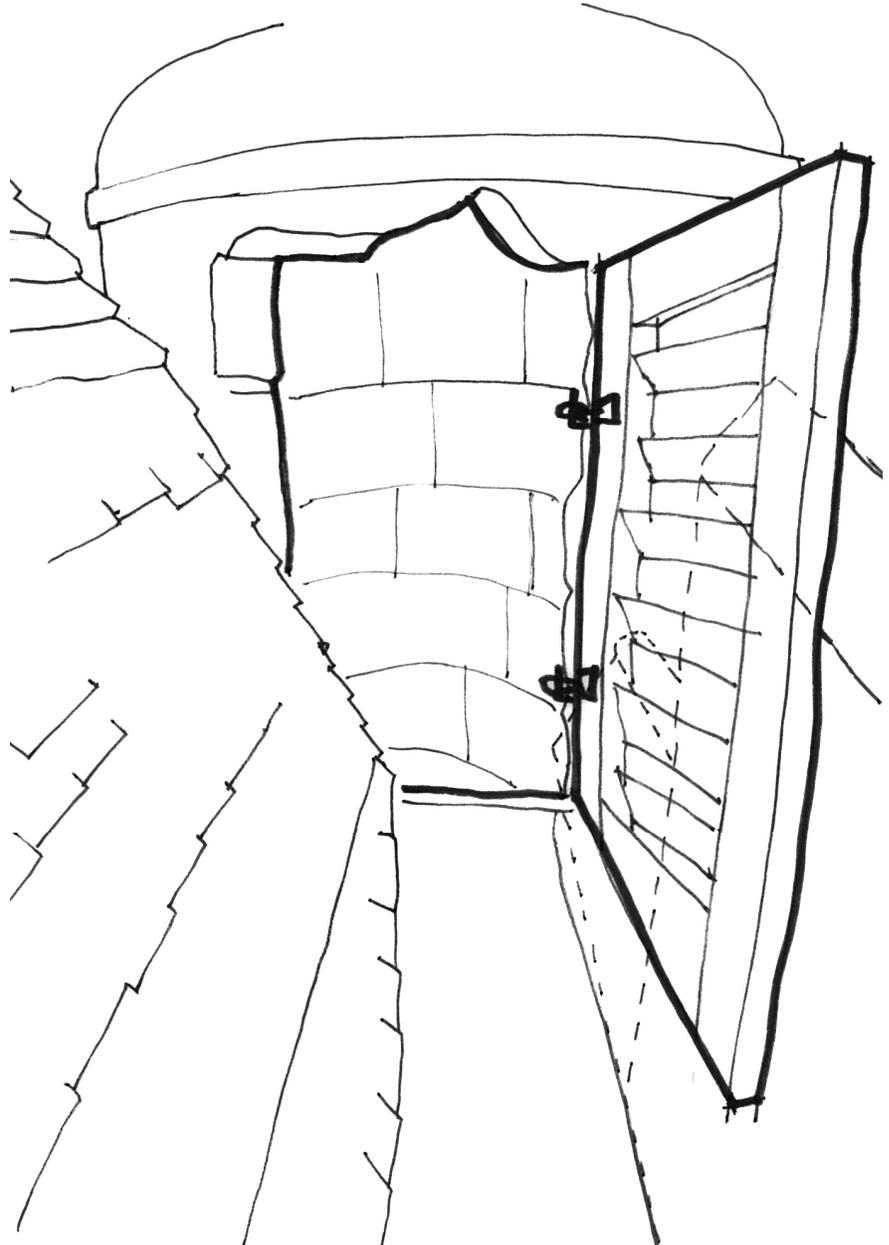


Fig. 31 (top) Reference photo showing existing arrangement.

Fig. 32 (right) Proposal showing timber louvered door. Existing crenellations are dashed.