Derby Diocesan Association of Church Bellringers Consultant's Report	Report DDACB 0707
Church of All Saints, Youlgreave – Proposal for External Sound Control	Issue Date 14 November 2007

1.0 Introduction

In order to significantly reduce the neighbourhood noise foot print of the bells during unscheduled ringing, the PCC (through David Camm) requested a proposal for installation of sound control in the louvres. This report details a low cost proposal.

2.0 Overview

Each louvre opening is already blocked with concrete blocks up to the height of the arched top and so it is only necessary to introduce sound control to the area of the arched section. Sound control in each louvre will be achieved by introduction of a remotely operated door forming part of an acoustic barrier made from heavy sheet materials sealed around the edges. Since the door will be closed against a seal when in sound control mode, natural ventilation of the bell chamber will be interrupted. For this reason the door should be left open on all occasions when sound attenuation is not required. A consequential design requirement is that the area uncovered by the door in the open position must be at least equal to the existing effective ventilation flow area of the louvre opening.

A Faculty will be required.

3.0 Description of Design (see Figures 1, 2 and 3)

For each of the eight louvre openings, the design comprises a sloping acoustic barrier with a closure shelf at the bottom and a remotely operated opening door in the centre. It is made from a double layer of 18 mm marine plywood (i.e. 36 mm thick) with the peripheral gaps with the tower walls sealed by injection of expanding foam filler. The layers should be held firmly together by water-proof glue and stainless steel screws. There is a framework of tanalised 50X50mm softwood attached to the underside of the barrier (by stainless steel screws) to give the barrier greater stiffness – see figure 3.

The door is hinged at its top and is sealed against the barrier by means of a rubber “P” seal strip. Since the barrier slopes, the door is held shut by gravity. Door opening is achieved by means of a commercial hand operated winch positioned in the ringing room acting on the door via a 4 mm galvanised steel winch cable and suitably placed pulleys. (Suitable winches, model TW600,

are sold by “Machine Mart”). It will be possible for each winch to operate more than one door and this will be determined during installation.

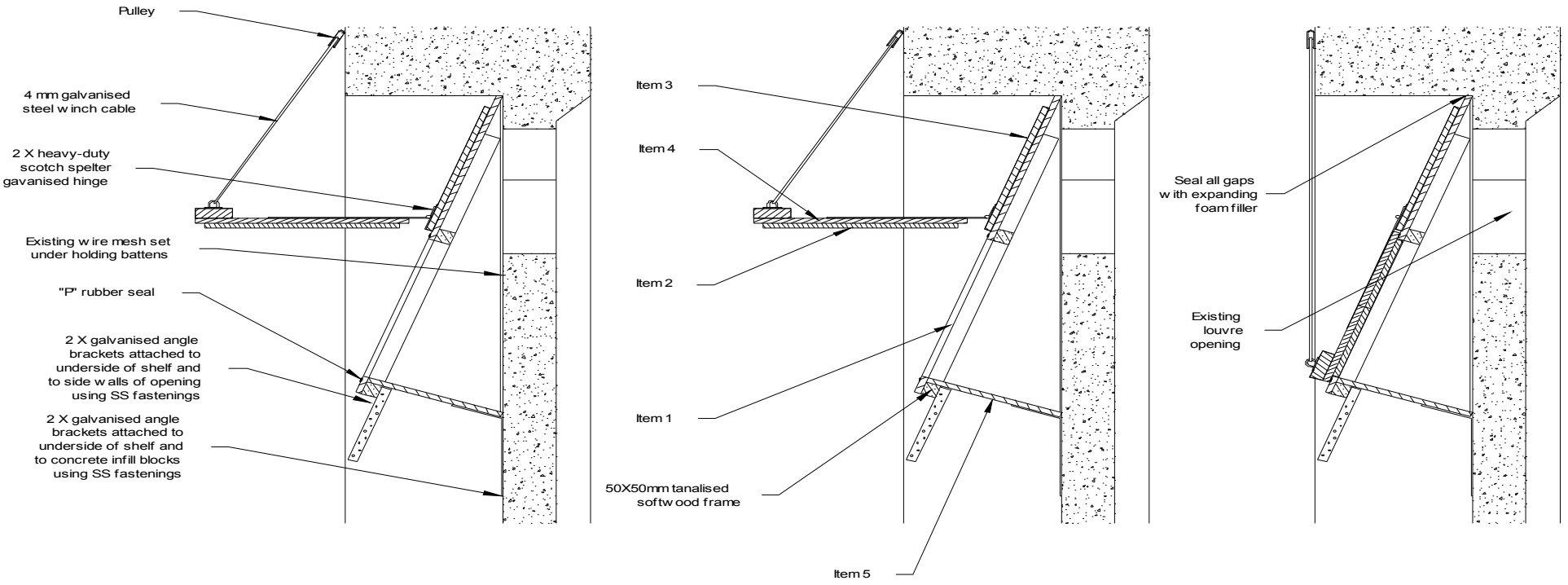
The area opened up in each acoustic barrier when its door is opened is 0.428 m^2 compared with approximately 0.426 m^2 for each of the existing single louvre openings. This will ensure that the bell chamber ventilation is not adversely affected by the acoustic barriers when the doors are held open.

It may be necessary to incorporate a small drain hole in the closure shelf (item 5) to enable wind blown rain to escape.

Referring to figure 2, it can be seen that the eight acoustic barriers and doors can be cut from 7 sheets of 1220X2240X18mm marine ply with very little waste. However before cutting, it would be prudent to check the width of each individual louvre opening and compare with the value of 1181 assumed in figure 2, making adjustments as necessary. The lengths of item 5 will definitely need adjustment.

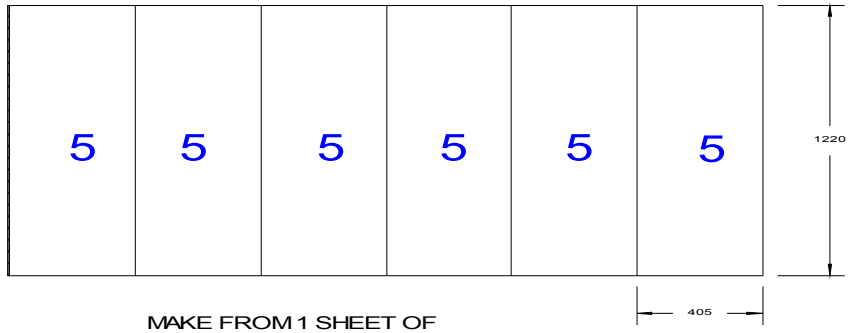
Mike Banks
Bell Consultant to the Derby Diocesan Association of Church Bellringers

FIGURE 1 - SECTIONED SIDE VIEW OF INSTALLATION

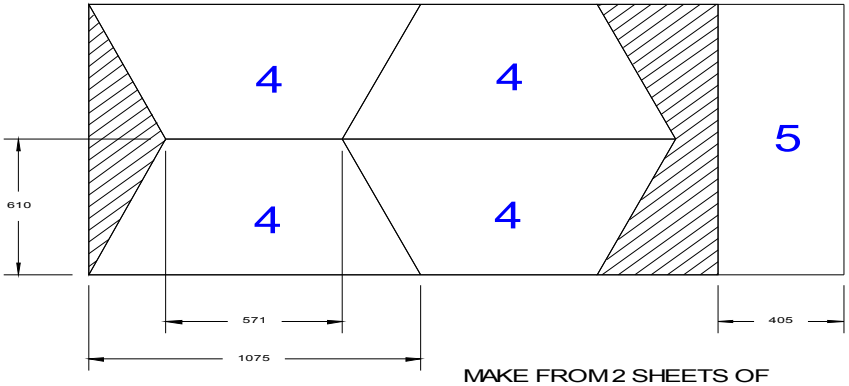


DOOR OPEN

DOOR CLOSED



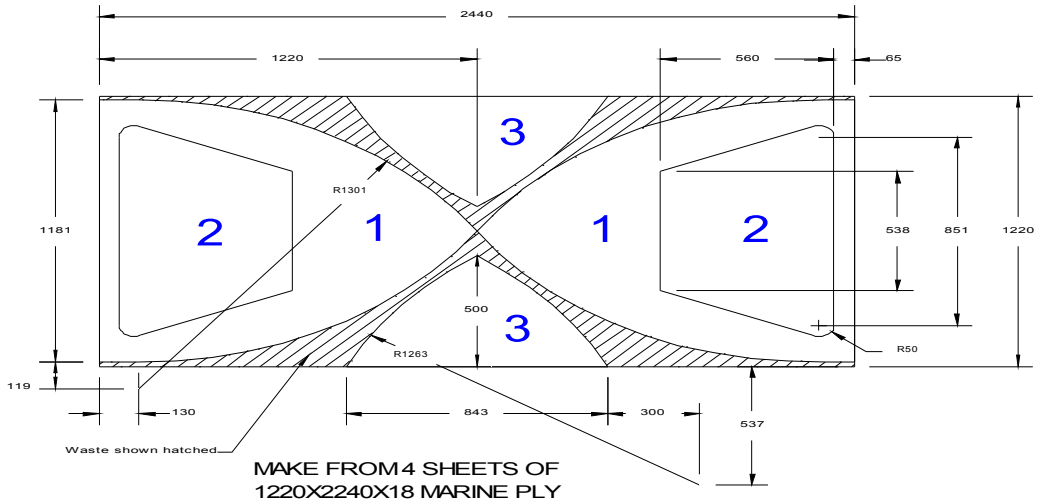
MAKE FROM 1 SHEET OF
1220X2240X18 MARINE PLY



MAKE FROM 2 SHEETS OF
1220X2240X18 MARINE PLY

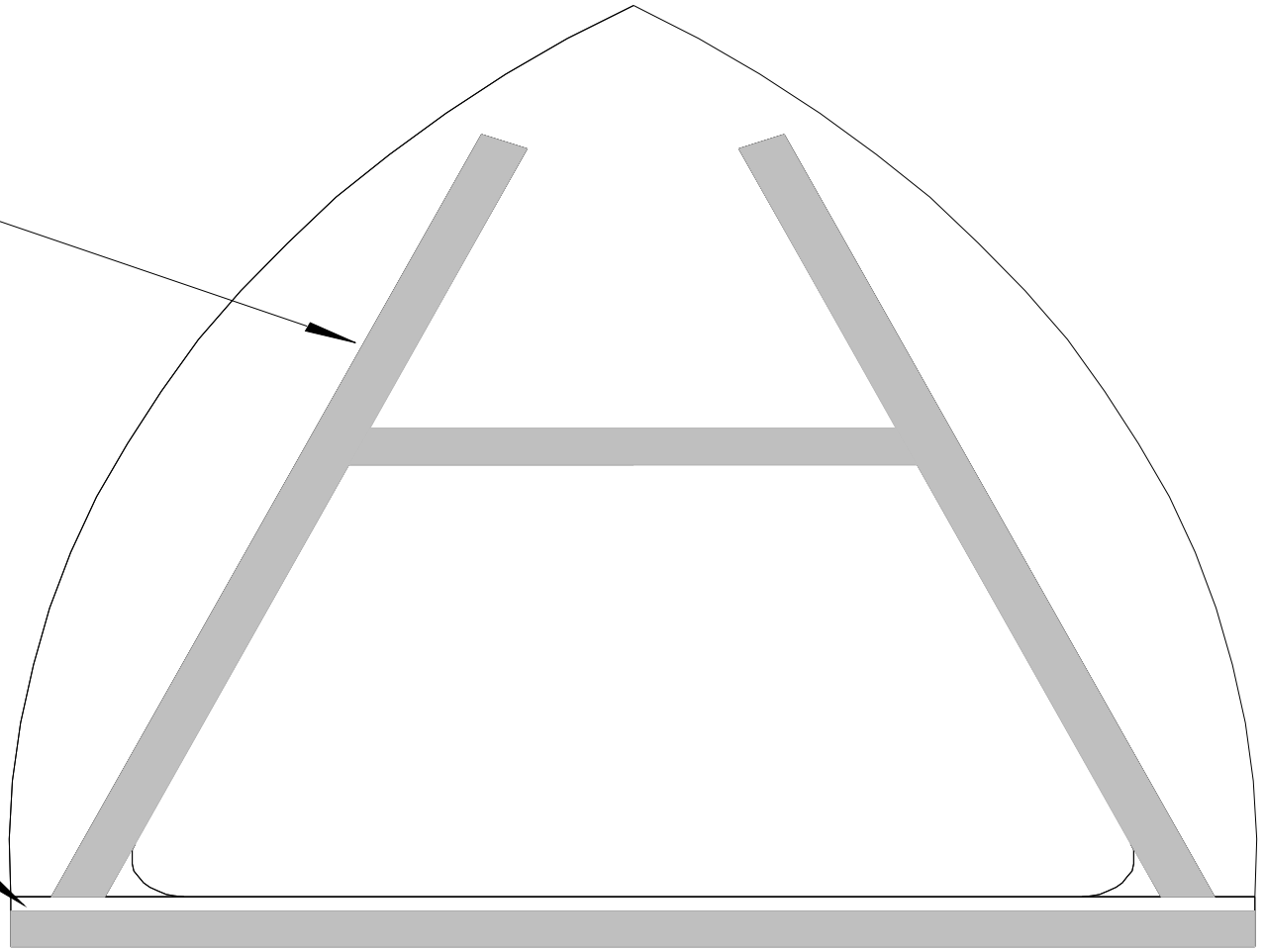
FIGURE 2 - MATERIAL CUTTING DETAILS

(Item reference numbers shown in blue)



MAKE FROM 4 SHEETS OF
1220X2240X18 MARINE PLY

50X50mm tanalised softwood framework screwed to back of item 1



Item 5

FIGURE 3 - FRAMEWORK