

**DIOCESE OF CHELMSFORD**

**DIOCESAN ADVISORY COMMITTEE**



**BELLS AND BELLFRAMES**

**GUIDELINES TO ASSIST PARISHES**

**Issued April 2004**

# BELLS AND BELLFRAMES

## INTRODUCTION

- 1.1 Practically all medieval towers have at least one bell as do many later churches. A few churches have substitutes for conventional bells in the form of hemispherical or tubular bells or bell recordings relaying bells through loudspeakers. A small number of modern churches do not have bells. This paper is in respect of conventional shaped bells only.
- 1.2 Many of the bells existing in church towers are old, a few dating back as far as the 13<sup>th</sup> century and a considerable number being medieval. Because of the historical importance of many of these bells, The Church Buildings Council has drawn up a schedule of bells that are considered worthy of preservation. This list includes all bells cast before 1550 and subsequent bells which are considered important. A schedule of these bells is held by the Diocesan Bell Adviser.
- 1.3 The bell frame in which the bells hang can also be old with some being of the same age as the building of the tower. A similar schedule exists for important bell frames.
- 1.4 For bells and bell frames not listed for preservation each case will be judged on its merits.
- 1.5 Bells are sounded in a number of ways.
  - a) **Bells hung for full circle ringing** When bells are rung in this manner the tower and bell frame are subjected to large dynamic loads, and forces are transmitted from the bell frame into the tower. The number of bells hung for change ringing in a tower range from three to twelve with the vast majority of towers having six or eight bells.
  - b) **Bells hung for swing chiming** The dynamic loading is very much less as the bells are swung through a small arc. The number of bells in a tower hung for swing chiming is in the range of one to three bells.

- c) **Bells hung for stationary chiming including clock bells** Bells may be struck with either an internal or external hammer. A tower may have any number of chiming bells normally ranging from one to twelve.

- 1.6 Some installations have a combination of (a) and (c), or (b) and (c), above. In particular a peal of bells hung for full circle ringing may have an Ellacombe chiming apparatus which enables one person to chime all the bells when there are insufficient ringers to ring the bells.

## **BELLS**

- 2.1 If a bell is on Church Buildings Council Schedule as being considered worthy of preservation, the only work that is normally recommended at any restoration is the removal of the cast-in crown staple. These staples are made of iron and they rust and expand with age and crack the crown of the bell. **Rusting and expansion of crown staples is the main cause of bells becoming cracked.** It is important that a stress relieving hole is drilled through the bell and this hole can be used for fitting an independent crown staple. With this exception it is recommended that the scheduled bells should not be altered in any way, the canons should remain intact and the bell not tuned. If a scheduled bell becomes cracked it can normally be welded and this is to be recommended.
- 2.2 Restoration work should take place on bells when the indentation **where the clapper strikes reaches ten per cent of the thickness of the bell at the point of impact.** When this indentation has been reached the bell should be turned to present a new surface to the clappers.
- 2.3 If a bell is recast the old inscription should be reproduced in facsimile on the new bell. The canons or loops on the bells from which the bells are attached to their headstocks should generally be retained, particularly if other bells in the ring have canons retained because of their age.
- 2.4 Bells on display in the church are liable to theft and should be removed to an upper floor of the tower if this is possible. Quite often these bells are important bells which have become cracked. With modern successful welding techniques it may be possible to bring these bells back into use.

## **BELLFRAMES**

- 3.1 If the bells are hung for full circle ringing the framework has to be rigid within itself and within the tower structure. Any movement in excess of one sixteenth of an inch (1.5mm) will have an adverse effect on the ringing of the bells and a significant increase in this figure will make it possible for only very experienced ringers to ring the bells. It would be very difficult to train new recruits. If the framework is old and cannot be stabilised it may be possible to retain it and construct a new frame lower in the tower. Similarly for towers which sway considerably the frame may be lowered.
- 3.2 If bells are hung for ringing but have not been rung in this manner for a long period of time it is essential that, before the bells are rung in the first instance, the advice of the Diocesan Bells Adviser be sought.
- 3.3. Bell frames are usually constructed in oak or cast iron and steel. Wooden frames that have iron tie rods and corner brackets should be checked for tightness. Metal frames should be painted every 10 – 15 years.

## **FITTINGS**

- 4.1 Clock hammers and chiming hammers fitted to bells that are hung for full circle ringing can cause problems. These hammers should be attached to seatboards which are nailed to the floor so that they will pull out of the floor should a hammer foul a swinging bell. If the hammers are bolted to the frame sides there is a risk of damaging the bell.
- 4.2 All stays on ringing peals should be made of ash; stays constructed in hardwood should not be used.
- 4.3 Springs on clock hammers should be checked regularly to ensure that the hammers do not rest on the bells.

## **TOWER**

- 5.1 Most damage is done to bell installations by the ingress of water through the tower roof. An effort should be made to check the condition of the tower roof particularly if there is not a band of ringers.

- 5.2 It is very important that birds are excluded from the tower and the mesh over the louvres should be checked to see that it is not defective. However if bats or protected species of birds have gained access to the tower the advice of English Nature, Harbour House, Hythe Quay, Colchester, CO2 8JF should be sought.
- 5.3 All tower stairs should be kept free from debris. Ladders should be in good condition and safe to use, if in doubt consult your insurance company. If not fitted, the installation of a rope handrail should be considered.
- 5.4 Consideration should be given to installing emergency lighting in ringing chambers.

## **LIGHTNING CONDUCTORS**

- 6.1 Lightning conductors should be fitted on all towers and all large metal objects inside the tower such as metal bell frames should be connected to the main earthing lead. There should be a connection near to the ground, so that testing to ensure that a low resistance to earth is maintained.

## **BELLS IN TURRETS**

- 7.1 A number of bells are hung in inaccessible turrets and do not receive attention for every many years. If access to these turrets becomes available during roof repairs the opportunity should be taken to check the bell and its fittings to see that they are safe. Contact the Diocesan Bell Adviser.

## **MAJOR RESTORATION WORK**

- 8.1 Consult the Diocesan Advisory Committee at an early stage.

## **CONVERSION TO UPSTAIRS RINGING ROOM**

- 9.1 If conversion to an upstairs ringing room is being considered the following should be borne in mind.
  - a) The height of the ringing room should not be less than 5 metres unless it is a small ring of bells (tenor bell less than 6cwt/300kg).

- b) For all new floors or ceilings there should be a central trap 3-4 inches (75-100mm) larger than the tenor bell so that bells could be removed at any time should the need arise.
- c) Additional internal sound control may be necessary.
- d) Any new lighting installed should be well away from the bell ropes. A light switch should be installed at ringing chamber level.
- e) A power point should be installed at ringing chamber level.
- f) Ventilation will be needed in the ringing room. If sufficient ventilation cannot be obtained through windows then floor or ceiling grilles could be installed or ventilation introduced by artificial means by electric fan.

## **HELP & SOURCES OF GRANT AID**

If contemplating any work to bells and bell frames, help can be obtained from the DAC Bells Advisor.

The Church Buildings Council, The Conservation Officer, Church House, Great Smith Street, London, SW1P 3NZ. Grants, from funds made available.

The Central Council of Church Bell Ringers, Bell Restoration Funds Committee, C/o The Ringing World, Eagleside House 7-9 Chantry Street, Andover, Hampshire, SP10 1DE. This committee makes recommendations to the trustees of the Manifold Trust. Emphasis is on the restoration of peals of bells to be hung for full circle ringing which have been unringable for some time.

English Heritage, 23 Savile Row, London, W1X 1AB. The conservation of outstanding timber bell frames may receive grant aid.

The Barron Bell Trust, The Managing Trustees, 71 Lower Green Road, Pembury, Tunbridge Well, Kent, TN 4EB. This is a charitable fund for “providing, installing, inspecting, replacing or maintaining bells in churches where in the opinion of the Trustees the associations are low as distinguished from high, broad or modernist”.

The Leche Trust, The Secretary, Christ Church, Spitalfields, Commercial Street, London, E1 6LYL. This Trust gives grants for the conservation of bells cast in the Georgian period.

The Sharpe Trust, The Grant Secretary, The Old Bakehouse, Beech Pick, Elkstone, Cheltenham, Gloucestershire GL53 9PL.

The Heritage Lottery Fund, 7 Holbein Place, London, SW1W 8NR

The Essex Association of Change Ringers, The Honorary Secretary, 11 Bullfields, Sawbridgeworth, Hertfordshire, CM21 9DB

## **BIBLIOGRAPHY**

The Conservation and Repair of Bells and Bell frames. Code of Practice, published by The Council for the Care of Churches 1993.

The Church Buildings Council, paper on Substitutes for conventional bells dated October 2002.

Towers and Bells, a handbook compiled and published for The Central Council of Church Bell Ringers by The Tower and Belfries Committee, General Editor, Alan J. Frost 1990.

The Church Bells of Essex, Deedes Revd C. and Walters HB. Printed for the Authors, Aberdeen 1909.

Dove's Guide for Church Bell Ringers to the Ringing Bells of Britain and the World, compiled by Baldwin J. and Johnston R and published by The Central Council of Church Bell Ringers, Guildford 2000.

The Central Council of Church Bell Ringers produces a large number of publications covering all aspects of bells and bellringing.

## **POLICY**

1. Important bells and bell frames should be preserved
2. Consideration should always be given to repairing bell frames rather than replacing them.
3. Parishes must seek the advice of their Diocesan Bell advisor as specified in the Quinquennial Report.
4. The DAC must be consulted at an early stage in cases of major restoration and in west end re-orderings affecting towers.
5. A Faculty is required for all work associated with bells and towers with the exception of the inspection and routine maintenance of bells and bell frames and the replacement of wooden bell stays.



**This is one of a series of guidelines published by the  
Diocesan Advisory Committee**

**Copies can be downloaded from the Diocesan website :**

**[www.chelmsford.anglican.org/parishes/dac/dac\\_notes](http://www.chelmsford.anglican.org/parishes/dac/dac_notes)**

**or can be obtained from the**

**DAC Secretary at the address below.**

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