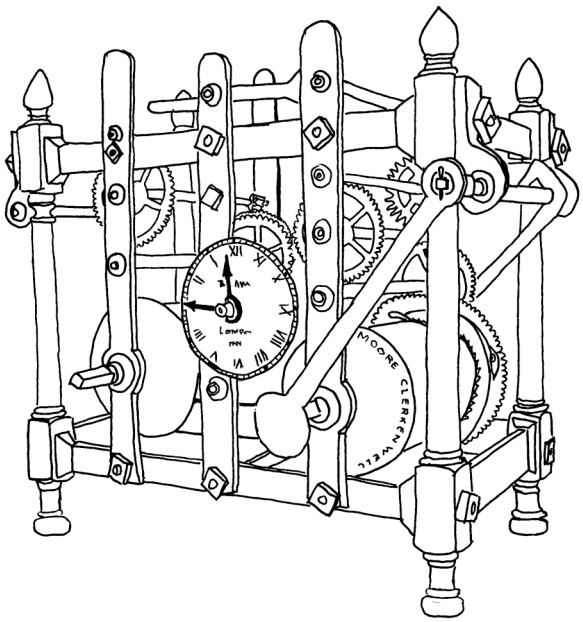

Guidelines for Turret Clocks Health & Safety Assessment

by

Chris McKay

BSc CEng MIEE MBHI

About the Author

Chris Mckay's interest in turret clock dates back to when he was 11 and was fascinated with a derelict clock tower overlooking the football pitch used by the school. When he was 19 he was involved with a team of others in the repair of the clock. Since the he has worked a wide range of turret clocks from major restorations to servicing. He has been involved in work in Canada, Australia and Western Africa.

He graduated as an electronic engineer from Sussex University and achieved Chartered Engineer status when he was 29. His electronics experience ranged from field service through design and development to manufacturing and testing. After being made redundant Chris fell into teaching where for 12 years he taught Design and Technology in secondary school and then turned to clock work with the additional objective of writing books.

Chris is a professional member and Director of the British Horological Institute (BHI) and has run technical courses on turret clocks for the BHI, and also for new apprentices and companies. He lectures on turret clocks and horological topics.

Chris is a member of the Antiquarian Horological Society (AHS) and was for 27 years on the committee of its Turret Clock Group. He has at various times been its Treasurer, Secretary and finally Chairman for 12 years. He has edited their 'A Guide to Turret Clock Research' and 'The Great Salisbury Clock Trial'.

While a member of the Council for the Places of Worship, 25 years ago he wrote their turret clock information booklet. He has recently been invited to rejoin this committee now known as The Council for the Care of Churches.

Chris' objective is to promote the care of turret clocks, their preservation and raise awareness of the history of turret clocks in technical, social and economic aspects.

About the Series of Documents
It was suggested that I produce a Code of Practice for those who work on turret clocks, this finally emerged as an extensive set of Guidelines. Many professionals, historians, restorers, clocks advisers and museum staff contributed to the content.

It became obvious that one document was inappropriate to address all readers, so two others were spawned from the first to address; health and safety issues, and advising on commissioning turret clock work. An article produced for the Ringing World was revised and added to the suite since it contained useful information on basic measures to help preserve clocks.

The full set is

Guidelines for Turret Clocks: Repair, Restoration, Conservation, Preservation & Maintenance.
Aimed at clockmakers this is detailed blow by blow discussion of techniques of repair, maintenance and conservation.

Guidelines for Turret Clocks: Commissioning Turret Clock Work
This document is intended to help those who need to have work carried out on a turret clocks. It gives ideas on quotations and interpretation, warranty, acceptable and unacceptable exclusions and pricing structures.

Guidelines for Turret Clocks: Simple Cost-Effective Strategies for Preservation
A collection of ideas that any church or heritage building can put into action to help preserve their turret clock.

Guidelines for Turret Clocks: Health & Safety Assessment
Health & safety is important and this document gives ideas on what to look for when carrying a risk assessment on a turret clock and its access.

Although not part of the latest series, essential reading is…

The Turret Clock Keeper's Handbook
A booklet that covers history, clock types and basic functions like winding, setting to time, regulating and correcting out of sequence striking.

All the documents can be downloaded free of charge from the web site.

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Dear Reader,
Having produced a set of technical guidelines for clock restorers, feedback comments when it was in draft indicated that a guide might be useful to help those assess health & safety issues concerning turret clocks. This document is the result.

Regards,

Chris McKay

Guidelines for Turret Clocks Health & Safety Assessment

by

Chris McKay
BSc CEng MIEE MBHI

Introduction
This is the initial issue of 'Heath & Safety Assessment'. It is intended to help those who are responsible for turret clocks.

From time to time I have been refused permission to see a turret clock on the basis of "It's not safe up there, only the clock winder is allowed up the tower". If it's not safe for me then it's not safe for the clock winder is the simple answer, and in the event of an accident whoever was responsible for the clock could be held liable.

Risk Assessment Check Sheet
The following check lists are supplied as a guide, so churches, heritage buildings and public buildings can have a starting point for considering health & safety issues. Some are very specific to turret clocks and some are general in nature. I cannot claim that these lists are exhaustive and cover every situation, but they do provide a very good starting point.

Those responsible for clocks are invited to fill in these forms, sign them and place them on file. It is hoped they will never be needed, but in today's society where it is becoming the norm is to look for someone to blame and to sue, they may be useful to demonstrate that an evaluation had been carried out.

Check lists are provided of hazards that may be experienced. This 'check list' is divided into the principal areas that concern a turret clock. These lists may not be exhaustive, so spaces have been left so extra items may be included if necessary.

Risk assessment often involves estimating the possibility of an event happening along with the severity of its result. Assessors are welcome to adapt these lists as they think fit.

Turret Clock Health & Safety Survey

Location……..……..

Date of Survey……...……..

Survey Carried out by……..

Signed……

Dated……

1 of 6
General

General Safety Issues	
Hazard	**Tick if there is not problem, otherwise enter comment.**
Does the building have a lightning conductor	
Has a survey been carried out for asbestos.	
Have the electrics been tested, including all electric up the tower.	
Are there adequate fire extinguishers (powder or CO^2 for electrical work) in the tower.	
First aid kit available.	
Can people be locked in by accident or malicious act.	
Is there a procedure by which a clock winder who is locked in can summon help.	

Comments on issues needing attention

Access

This refers to access to the clock as reasonably needed by the clock winder, or persons going to make adjustments to the clock.

Access Safety Issues	
Hazard	**Tick if there is no problem, otherwise enter comment.**
Worn stone steps.	
Dusty / dirty / slippery steps.	
No hand rope / rail.	
Wooden ladders in poor condition, missing or damaged rungs.	
Vertical ladders.	
Unsecured ladders.	
Trap door that can fall on head.	
Poor / no lighting.	
Wormed flooring.	
Holes in floor.	
Unprotected holes for weights.	
Raised platform for clockwinder with no rails / protection.	
Exposed electric wiring / connectors.	
Bird droppings & nesting materials:- slippery, health hazards of fleas and respiratory problems, corrosive to metalwork, fire risk.	

Comments on issues needing attention

3 of 6

Weight Lines

Many clocks are driven by weights that range from around 50lbs to as much as half a ton. The weight lines are made of steel wire, though sometimes rope is encountered. The free end of the line is attached to the top of the weight shaft, often by screw eyes or U bolts. Often weights are enclosed in a shaft, but not always.

Weight Lines	
Hazard	**Tick if there is no problem, otherwise enter comment.**
Rusty steel lines.	
Lines that are polished smooth.	
Lines with prickles on them.	
Lines more than 10 years old.	
Doubtful line attachment... e.g. just a knot.	
Wormed / rotten supporting beams.	
Unknown condition of screwed-in eyes.	
Rusty lines particularly near attachments.	
Line attachment points inaccessible.	
Fibre ropes in poor condition.	

Comments on issues needing attention

4 of 6

Weights

The reality is that over the last 200 years the number of fatalities directly due to a turret clock is still in single figures. Excluded from this number are secondary causes such as heart attacks and falls whist climbing church towers.

Falling weights due to line breakage cause significant damage. In falling a weight could cause other weights to follow, it could break out of weight chute, go through floors and injure people nearby.

Some clock installations have a box of sand or broken bricks at the bottom of the weight shaft to absorb the energy of a falling weight. However, weights do not always fall straight.

Weights	
Hazard	**Tick if there is no problem, otherwise enter comment.**
Rusted centre stem.	
Cheeses that could fall off.	
Bottom of weight shaft used for cupboard space / electric meters, fuse boxes.	
Public able to walk underneath weights.	
No access for clockmaker to bottom of weight shaft.	
In the event of a line failure, what would happen to the weights?	

Comments on issues needing attention

5 of 6
Dials
Many dials were installed in the Victorian era and now their fixings are corroded. Inspection really needs access by scaffolding or a steeplejack. However, some idea may be gained by inspection with binoculars or telescope.

If scaffolding is up the tower, get a turret clockmaker to remove the hands and service the motionwork. Don't ask them to do this the day before the scaffolding is to be taken down!

Inaccessible dials are normally accessed by trained persons who use abseiling techniques.

Dials	
Hazard	**Tick if if there in no problem, otherwise enter comment.**
Rusted fixing bolts.	
Rusted fixing staples.	
Fixing bolts in rotten / wormed wood blocks.	
Fixing bolts in decayed stonework.	
Broken glass in illuminated dials.	
Cracked cast-iron dials.	

Comments on issues needing attention

6 of 6

Bells and hammers

The bell hammers are definitely part of a clock installation. So often these are forgotten and in poor states. Faulty hammers can cause much damage to a swinging bell and its wheel.

Bell Hammers	
Hazard	**Tick if there is no problem, otherwise enter comment.**
Fixing of hammers and cranks loose.	
Check springs badly adjusted allowing hammer head to rest on bell.	
Ringers' clock hammer pull-offs using old rope, rusty wire.	

Comments on issues needing attention

Sources of information
The CCC web site has information on health & safety and working at heights.
http://www.churchcare.co.uk/

The Health & Safety Executive web site has details of publications about ladders, working alone, falls and risk assessments.
http://www.hse.gov.uk/pubns/

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