

Buildings and structures for agriculture

**Part 52. Code of practice for design of
alarm systems, emergency ventilation
and smoke ventilation for livestock
housing**

Confirmed
December 2009

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Farm and Horticultural Buildings Standards Policy Committee (FHB/-) to Technical Committee FHB/1, upon which the following bodies were represented:

- AFRC Institute of Engineering Research
- Aggregate Concrete Block Association
- Brick Development Association
- British Cement Association
- British Commercial Glasshouse Manufacturers' Association
- British Constructional Steelwork Association Ltd.
- British Poultry Federation Limited
- British Precast Concrete Federation Ltd.
- British Veterinary Association
- British Wood Preserving and Damp-proofing Association
- Cold Rolled Sections Association
- Department of Agriculture Northern Ireland
- Electricity Supply Industry in United Kingdom
- Farm and Rural Buildings Centre
- Farm Buildings Association
- Fibre Cement Manufacturers' Association Limited
- Health and Safety Executive
- Institution of Civil Engineers
- Local Authority Organizations
- Ministry of Agriculture, Fisheries and Food
- National Farmers' Union
- Royal Institute of British Architects
- Royal Institution of Chartered Surveyors
- Scottish Office (Agriculture and Fisheries Department)
- Steel Construction Institute

This British Standard, having been prepared under the direction of the Farm and Horticultural Buildings Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 30 August 1991

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The following BSI references relate to the work on this standard:
Committee reference FHB/1
Draft for comment 89/13137 DC

ISBN 0 580 19735 2

Amendments issued since publication

Amd. No.	Date	Text affected
10014	June 1998	Indicated by a sideline

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Foreword

This Part of BS 5502 has been prepared under the direction of the Farm and Horticultural Buildings Standards Policy Committee and comprises a new Part of BS 5502.

While BS 5502 is being revised and added to, the opportunity is being taken to restructure it into the following broad subject areas:

Part 0	Introduction and consolidated index
Parts 10 to 19	Reference information and legislation
Parts 20 to 39	General design
Parts 40 to 59	Livestock buildings
Parts 60 to 79	Crop buildings
Parts 80 to 99	Ancillary buildings

More specifically, the livestock building series will comprise:

Part 40	Code of practice for design and construction of cattle buildings
Part 41	Code of practice for design and construction of sheep buildings and pens
Part 42	Code of practice for design and construction of pig buildings
Part 43	Code of practice for design and construction of poultry buildings
Part 49	Code of practice for design and construction of milking premises
Part 50	Code of practice for design, construction and use of storage tanks and reception pits for livestock slurry
Part 51	Code of practice for design and construction of slatted, perforated and mesh floors for livestock
Part 52	Code of practice for design of alarm systems, and emergency ventilation and smoke ventilation for livestock housing

A more detailed description of the new structure of BS 5502 is given in Part 0.

The object of introducing the new structure is to allow subject areas to be broadly characterized, and related subject matter, whether in the form of recommendations, guidance or supporting data, to be rationalized and brought together. It will also allow sufficient flexibility to enable BS 5502 to be expanded and developed in a logical way in the future.

It has been assumed in the drafting of this British Standard that the execution of its provisions is entrusted to appropriately qualified and experienced people, for whose guidance it has been prepared.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Code of practice

1 Scope

This Part of BS 5502 gives recommendations on the design and selection of alarm systems, emergency ventilation and smoke ventilation equipment for the housing of livestock, especially poultry, pigs, calves and rabbits when housed under intensive conditions. These recommendations are an important factor in ensuring the welfare of livestock in the event of fire or failure of the ventilation system.

Methods of detection and alarm, and the provision of alternative ventilation are recommended for systems which have the ability to:

- a) detect failure of the electricity supply;
- b) detect unacceptably high or low temperatures; and
- c) provide a warning for the stockperson.

The main types of ventilation systems considered are those which provide fan powered and automatically controlled natural ventilation. For manually operated natural ventilation systems, only the warning that temperature is outside pre-set limits is considered.

The provision and display of operating instructions and procedures for testing and maintaining the alarm system and the emergency ventilation equipment are also covered.

The fitting of intruder and gas alarms, and the provision of subsequent escape routes is not included.

NOTE. The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

NOTE. Work has commenced on a further Part of BS 5502 (Part 10) which will be a glossary of terms used in BS 5502 for buildings and structures for agriculture.

For the purposes of this standard the definitions given in BS 6100 apply, together with the following:

2.1 alarm system

A combination of components connected so that an audible or visible alarm is activated when the temperature within the house departs by defined amounts from the desired value and/or the electrical supply to the ventilation system fails.

2.2 emergency ventilation

Ventilation provided from emergency openings designed to be operated in the event of detection of high temperature and/or failure of the electricity supply to the ventilation system.

2.3 pre-set temperature limits

The pre-set levels of temperature (high or low) at which the alarm system is actuated.

NOTE. In this case temperature is the dry-bulb temperature which is indicated by any standard measuring device shielded from direct radiation.

2.4 stand-by generator

Electrical plant installed to provide power for fans, lights, heaters, controls etc. in the event of electrical mains failure.

2.5 stockperson

The person with the duty of caring for the well-being and welfare of the livestock housed.

2.6 smoke ventilation

Ventilation provided from emergency openings designed to be operated in the event of detection of fire.

3 Welfare considerations

Attention is drawn to the provisions of the current Code of Recommendations for the Welfare of Livestock.

Special consideration should be given to all classes of intensively housed livestock and, in particular, consideration should be given to the following.

- a) All automatic and mechanical equipment essential for the health and welfare of the stock should be inspected at least once daily.
- b) Alternative ways of feeding and of maintaining a satisfactory environment should be available for use in the event of a breakdown.
- c) There should be an alarm system to warn the stockperson of failure of any automated ventilation equipment.

NOTE. Similar provisions are laid down in the Welfare of Battery Hens Regulations, 1987.

In addition, attention is drawn to the need to provide adequate heating and to avoid overcooling for susceptible stock in cases of an emergency.

The implications for animal welfare of intruders, gas hazards and means of escape are not covered in this standard, but should nevertheless be considered.

4 Selection of system

4.1 General

The selection of an alarm system should depend upon the class of stock housed, the type of housing and the type of ventilation system.

NOTE. Great care should be taken when selecting controllers which automatically increase the temperature at which the alarm operates to compensate for an increase in outside temperature.