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1. Introduction

The significant difference between thatched properties and most other premises of similar use is the perceived, and many would conclude the real, increased risk of fire. This is attributable largely to the more combustible material used for the roof, but extinguishing a fire in a thatched property is often made more difficult due to the inherent quality of the thatch to repel water, including that from the firefighters' hoses.



2. Consultation

Consultation with all interested parties is essential if satisfactory electrical design solutions are to be achieved. As well as conferring with any licensing or other authority exercising statutory control, it is advisable to consult with the Local Authority's Fire Prevention Officer and the building insurer in respect of the proposed design for the electrical installation.

3. Assessment of general characteristics

In assessing the general requirements identified by Regulation 301.1, the designer would necessarily consider all the external influences likely to affect the choice of protective measures and the selection of equipment. Examples of external influences which may be more significant in the case of thatched properties are listed in Table 1:

Table 1

External influence	Example
Foreign bodies	Fragments of the thatch, other debris and dust from straw or reed roofing material.
Fauna	Birds, rodents and insects.
Corrosion	Waste from fauna.
Impact	Thatch fixings.
Flora	Mould growth.
Lightning	Possibility of lightning strike to metal on or adjacent to the thatch.
Building (materials)	Combustible materials including thatch, wooden frame and nesting materials (fauna).

4. Selection of wiring systems

To meet the requirements embodied in Chapter 42 and Sections 522 and 527 of *BS 7671*, wiring systems in spaces adjacent to thatch should be suitably selected and installed to minimize:

- temperature rise,
- ingress of foreign bodies, such as fragments of thatch and other debris,
- deterioration due to corrosion,
- mechanical damage by fauna or impact, and
- the spread of fire, given the increased risk due to the presence of combustible materials.

Wiring systems generally considered suitable for areas visited by vermin within thatched buildings include mineral-insulated cables having an overall thermoplastic covering, armoured cables, steel conduit, steel trunking, and thermoplastic insulated and sheathed flat twin and earth cables suitably shielded from mechanical damage by metallic capping.

Experience with high-impact plastic conduit and trunking in such situations is understood to be favourable. Metal conduit and trunking systems and other enclosures should be well sealed and galvanized, or otherwise protected with a corrosion-resistant finish where the environment is not expected to remain completely dry. Cables not in steel trunking or steel conduit should be positioned or otherwise protected to avoid damage caused by thatchers' fixings.

All wiring containment systems should be designed to prevent entry by rodents. In selecting wiring system(s) suitable for dusty areas, particular attention should be paid to the ingress of dust, the selection of equipment with suitable IP ratings, and the need to ensure that the ratings are maintained when the wiring system is constructed and installed.

Cables and wiring systems should **not** be installed immediately under, through or over the thatch. This includes not only those operating at mains voltage, but also extra-low voltage and communications wiring, and radio and television aerial down-leads. Overhead wiring systems should preferably not pass over or near the thatch. No wiring system should be installed closer than 300 mm to any wire-netting applied to the thatch.

In locations constructed of combustible material, cables and cords are required to comply with the requirements of *BS EN 60332-1-2* and conduit and trunking systems are to be in accordance with *BS EN 61386-1* and *BS EN 50085-1* respectively. Conduit and trunking systems must meet the fire resistance tests within these standards (Regulations 422.4.5 and 422.4.6 refer).

5. Terminations and joints

Terminations and joints should preferably not be located in roof voids or other spaces adjacent to the thatch. Where this is unavoidable, terminations and joints should be contained within enclosures suitably selected to prevent the ingress of foreign materials or fauna, and mechanical damage. The enclosures should preferably be made of metal. Cable entries to ceiling roses, ceiling switches and luminaries etc in an area beneath a roof void should preferably be made in suitable metal boxes or, alternatively, sealed to prevent the ingress of dust.

6. Electrical equipment such as heat-emitting equipment, including luminaires, in the vicinity of the thatch

Electrical equipment is to be selected and erected such that its temperature in normal operation, and foreseeable temperature rise in the event of a fault, is unlikely to cause a fire, taking due account of external influences. This requirement is to be achieved by the construction of the equipment or by additional protective measures taken during erection (Regulation 422.1.2 refers).

Heat-emitting equipment should be selected and positioned with great care. Recessed luminaires which penetrate the ceiling and enter the roof space generally require purpose-made enclosures to prevent ignition of combustible materials which may come into contact with high temperature surfaces, including those associated with lamps. Luminaires sited in loft spaces for loft lighting should be totally enclosed, such as the bulkhead type.

To meet the requirements contained in Chapter 42 and Regulation Group 512.2, luminaires in spaces adjacent to the thatch and on the exterior of the building should be installed in accordance with any relevant instructions of the equipment manufacturer, and at a suitable distance from the thatch so as not to cause ignition. The luminaires should be of a totally enclosed type to exclude foreign bodies or fauna which could cause overheating or fire.

7. Minimizing the risk of fire

For the purpose of protection against fire, consideration should be given to the provision of a residual current device having a rated residual current not exceeding 300 mA in the supply to all circuits and other electrical equipment in spaces adjacent to the thatch, such as roof spaces.

8. Fire detection and alarm systems

In certain cases, it may be prudent to consider a smoke and fire detection and alarm system, at least within areas adjacent to the thatch, including the loft(s). The provision of a fire detection and alarm system is necessary for compliance with *The Building Regulations* in the case of most new buildings, including dwellings, and where a material alteration is made to a building.

Fire extinguishing systems may also need to be considered, where appropriate.

9. Inspection and testing

The above matters should be taken into consideration in the initial inspection and testing, and verification of a new installation, and in the periodic inspection and testing of an existing installation.

10. The Dorset Model

The Dorset Model is a guide for builders and others on certain requirements and recommendations, including some concerning electrical installation matters, that should be met for thatched properties. The Dorset Model is advocated for use across Dorset and is being used, more and more, by Building Control Officers in other counties.

Information on the Dorset Model may be obtained from the website: www.dorset-technical-committee.org.uk

11. General information on thatching

General information on thatching may be obtained from the Thatching Advisory Service website: www.thatchingadvisoryservices.co.uk.



Topics referred to in this text:

None



Topics not referred to in this text, which are related and may be of interest:

E157 External influences



BS 7671 (Requirements for electrical installations)

Some of the most important requirements are found in:

Protection against thermal effects	Chapter 42
External influences	512.2
Selection and erection of wiring systems	Chapter 52