

Guidelines on building supervisory requirements for fire safety in livestock facilities¹

Administrative regulations of the Ministry of the Interior, Building and Digitalisation

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The Ministry of the Interior, Building and Digitalisation issues the following administrative regulations:

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¹ Notified in accordance with Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services (OJ L 241, 17/9/2015, p. 1).

1 Scope of application

- 1.1 These Guidelines apply to requirements under § 51 of the State Building Code of Mecklenburg-Western Pomerania (Landesbauordnung Mecklenburg-Vorpommern, LBauO M-V) for livestock farms whose buildings are at ground level and have either more than 1 600 m² of floor area (§ 2(4)(3) LBauO M-V) or more than 10 000 m³ of gross floor area (§ 2(4)(20) LBauO M-V). Unless higher requirements are specified in these Guidelines or lower requirements are permitted, the requirements of the LBauO M-V shall apply.
- 1.2 This applies irrespective of whether the operations are privileged operations as defined by § 35 of the Federal Building Code or commercial operations.
- 1.3 In the event of substantial changes to existing facilities, fire safety shall be checked in accordance with these Guidelines.
- 1.4 Agricultural storage facilities, feed stores and silos are excluded from the scope.

2 Safety objective

In accordance with § 14 LBauO M-V, livestock facilities must be arranged, constructed, modified and maintained in such a way as to prevent the outbreak of fire and the spread of fire and smoke (fire spread) and, in the event of a fire, to enable the rescue of humans and animals and effective fire-fighting operations. The safety objective of rescuing animals is also achieved by the animals remaining in the structure during the fire, without being harmed.

3 Extinguishing water requirements, extinguishing water supply and access

- 3.1 The ability to fight fires effectively includes sufficient supply of fire-fighting water to protect the property. The technical equipment used to supply fire-fighting water may include supply lines with hydrants and reserves of fire-fighting water independent of such supply lines such as fire-fighting water wells, fire-fighting water ponds and fire-fighting water suction connections to open water bodies. The quantity of fire-fighting water to be available must be at least 192 m³/h for two hours. The quantity of fire-fighting water that cannot be taken from the public drinking water supply shall be provided by further measures. The supply of fire-fighting water must be secured before commissioning. This also applies to any partial commissioning.
- 3.2 The fire brigade must have access to the fire-fighting water extraction points all year round. The extraction points have to be located outside the danger area of the livestock facility. Fire-fighting water extraction points shall not be more than 300 m from the livestock facility.
- 3.3 In enclosed, hall-like livestock facilities, fire brigade access doors must be provided in the external walls at intervals of not more than 40 m (this corresponds to twice the range of a jet pipe of approximately 20 to 25 m) in order to enable the rescue of humans and animals and to enable effective fire-fighting operations. When subdividing into structurally separate compartments, suitable openings for carrying out fire-fighting

operations from outside must be created. Suitable openings include, in particular, windows with an exterior sill height of no more than 1.20 m, doors and parts of the outer walls that can be removed by the fire brigade.

- 3.4 Livestock facilities with a usable area exceeding 3 000 m² must have an access route navigable by fire engines. Access routes must comply with the requirements laid down in the Guidelines on areas for the fire brigade, as amended.

4 Fire zones

4.1 Gross volume of fire zones

- 4.1.1 In accordance with § 30(2)(1)(3) LBauO M-V, buildings used for agricultural purposes are to be subdivided into fire zones not exceeding a gross volume of 10 000 m³. Exceptions are set out in points 4.2 and 4.3.

- 4.1.2 For the purpose of determining the gross volume of fire zones, basements that are openly connected to the ground floor via slatted floors and that are used exclusively for collecting slurry (slurry pits) and covered outdoor runs of enclosed livestock facilities shall not be taken into account.

4.2 Open livestock facilities

- 4.2.1 In the case of open livestock facilities, fire zones exceeding a gross volume of 10 000 m³ may be permitted subject to the following conditions:

- a) The open livestock facility is subdivided by non-combustible wall, ceiling and roof panels at least 5 m wide into a maximum of three fire sections, each not exceeding 10 000 m³,
- b) the walls of these fire sections must be open for at least two thirds of the entire length of the livestock facility and these openings being at least 1.5 m high, and
- c) a fire-related collapse of one fire section must not affect the stability of the adjacent fire sections (prevention of a kinematic chain).

- 4.2.2 In the areas of the wall, ceiling and roof panels referred to in point 4.2.1(a), load-bearing parts, insulation and formwork must be made from non-combustible materials. Light-permeable roofing made of combustible materials must be designed so that no burning parts fall or drip in this area. Photovoltaic surfaces must not be installed in this area and electrical wiring must be routed in non-combustible cable ducts and encased with non-combustible material. Further information on detailed design can be found in the guidance document 'Preventive structural fire safety in agricultural buildings, cattle farming' published by Arbeitsgemeinschaft Landtechnik und landwirtschaftliches Bauwesen in Bayern e.V., Freising 2013 (<https://www.alb-bayern.de/media/files/0001/leitfaden-brandschutz-lf.11-10.2013.pdf.pdf>).

- 4.2.3 The gross volume enclosed by the non-combustible wall, ceiling and roof panels shall not be counted towards the permissible gross volume of the fire sections referred to in point 4.2.1(a).

4.2.4 The overall width of the open livestock facility shall not exceed 40 m in the direction of the non-combustible wall, ceiling and roof panels referred to in point 4.2.1(a). Fire-fighting operations must be possible from two opposite sides of the respective fire section.

4.3 Enclosed livestock facilities

4.3.1 Enclosed livestock facilities shall not have more than two fire zones. By way of derogation from point 4.1, fire zones up to a gross volume of 15 000 m³ may be permitted in enclosed livestock facilities, if:

- a) an outdoor run is available to the individual animals as well as a footprint per animal that is larger than that required under the statutory provisions for the keeping of farm animals;
- b) the roof forms the upper end of the enclosed livestock facility;
- c) the roof frame is at least fire-retarding or made of non-combustible construction materials, and the roofing and insulation are made of non-combustible construction materials, except for the roof membrane and vapour barrier;
- d) the fire zones do not extend more than 40 m in any direction and fire-fighting operations are possible from two opposite sides of the fire zone; and
- e) the fire walls are also fire-resistant under additional mechanical load and are taken at least 50 cm above the roof.

5 Requirements for components and insulating materials

5.1 In terms of fire resistance and fire behaviour, load-bearing walls and supports, exterior walls, partitions and ceilings must comply with the minimum requirements set out in Table 1.

Table 1: Minimum requirements for fire behaviour and fire resistance

Components/materials	Fire behaviour / fire resistance
Load-bearing and bracing walls, supports	fire-retarding
Insulation materials	non-combustible
Walls and ceilings of accommodation spaces and technical rooms	fire-retarding
Construction materials for ceilings and suspended ceilings	non-combustible

6 Doors

6.1 Doors and gates shall not open against the direction of escape.

- 6.2 Closures of openings in the walls of accommodation spaces must be at least tight-closing and self-closing, and in the walls of technical and storage rooms and workshops must be at least fire-retarding, tight-closing and self-closing.
- 6.3 Closures of openings in fire walls must be at least fire-resistant, tight-closing and self-closing.

7 Escape routes

- 7.1 Each fire zone or fire section must have two separate escape routes.
- 7.2 Escape routes must be permanently and visibly marked with safety signs.
- 7.3 It must be possible to reach at least one escape route leading outside or to another fire zone or fire section within a distance of no more than 35 m from any part of a livestock facility. The distance referred to in Sentence 1 is measured in terms of metres to be covered on foot. For open livestock facilities, the length of the run may be 1.5 times longer.
- 7.4 Walkways, stable passageways and central walkways in livestock facilities serving as an escape route in the event of danger must have a usable width of at least 1.80 m. By way of derogation from the first sentence, in livestock facilities for pigs, a usable width of at least 1.20 m is sufficient for central walkways which open onto feed alleys and serve as an escape route in the event of danger.

8 Exits for animal rescue

- 8.1 Exits from livestock facilities leading outside must have at least the dimensions set out in Table 2, depending on the species concerned.

Table 2: Number and minimum size of exits, by species

Species	maximum number of animals per exit	Minimum exit width in m	Minimum exit height in m
Cattle, other than young cattle and calves	50	1.80	2.00
Young cattle	75	1.80	2.00
Calves	100	1.50	2.00
Weaners	400	0.90 ¹⁾	1.50
Fattening pigs	100	0.90 ¹⁾	1.50
Breeding pigs and farrowing sows	40	0.90 ¹⁾	1.50
Sheep	250	2.40	1.50
Horses (guided)	35	1.80	2.00
Horses (to Paddocks)	-	1.20	2.00
Poultry	-	4.00 ²⁾	4.00 ²⁾

¹⁾ Exits from central walkways for pigs shall be at least 1.20 m wide.

²⁾ Alternatively, run outlet flaps may be used, the size of which shall be determined according to the species of poultry.

- 8.2 Other exits intended for rescue should have at least the width of the associated walkway. Narrowing at exits must not exceed 15 cm.
- 8.3 Outdoor areas must be provided in which the animals can be kept from at least one fire zone or fire section.
- 8.4 The area of the exits, the outdoor areas and the paths connecting these shall be illuminated as required.
- 8.5 In the case that animals are intended to remain inside in the event of fire, the fulfilment of the protection objective referred to in point 2 shall be demonstrated separately by means of appropriate machinery. By means of the machinery, non-critical CO and CO₂ concentrations or temperatures are to be ensured, e.g. by means of machinery for the removal of smoke or water misting systems which switch to continuous operation in the event of fire with planned retention (see also Karlsruhe Institute of Technology (KIT), Research Centre for Fire Protection Technology (ed.), Brandschutzforschung der Länder der Bundesrepublik Deutschland Nr. 178: Effektiver, effizienter und wirtschaftlicher Brandschutz bei Massentierhaltung, by Dipl.-Ing. Jürgen Kunkelmann, Karlsruhe December 2016).

9 Technical fittings for buildings

- 9.1 Requirements for the necessary air exchange rates are laid down in the generally recognised codes of practice (for example: DIN 18910:2017-08) and other specifications in the rules on animal welfare.
- 9.2 Machinery for smoke extraction must switch on automatically, ensure an air exchange rate of at least 20 times and withstand a temperature of 300 °C for at least 30 minutes. The electrical wiring systems must remain operational for at least the same time in the event of external fire. A sufficient provision of supply air must be demonstrated. This also applies to the use of ventilation systems for the removal of smoke.
- 9.3 For mechanical systems for smoke extraction and water mist systems with switchover to continuous operation in the event of a fire, which are used for a dwelling concept in accordance with point 8, appropriate measures must be provided for supply in the event of failure of the general power supply.
- 9.4 In closed livestock facilities with safety systems and more than one fire zone, a separate power supply must be ensured for each fire zone. The electrical system of each fire zone must be able to be switched off by a labelled main switch.
- 9.5 The inverters of a photovoltaic system on the roofs of livestock facilities must be located in a room accessible to the fire brigade and separated from other rooms by fire-retardant partition walls and fire-retardant tight-closing and self-closing closures. If this is not the case, the inverters must be at a sufficient distance from structural installations.

- 9.6 Livestock facilities must be equipped with external lightning protection. Livestock facilities where fulfilment of the safety objective referred to in point 2 is verified in a dwelling concept using mechanical systems must also have surge protection (internal lightning protection).
- 9.7 In accordance with § 29 of the Building Inspection Ordinance, technical systems which serve to achieve the safety objective are to be inspected by recognised inspectors. The inspection interval for periodic inspections is one year.

10 Fire detection systems

- 10.1 Livestock facilities must be equipped with fire detection systems.
- 10.2 The fire detection shall be forwarded immediately to the control centre of the locally responsible fire brigade.
- 10.3 Fire detection systems that are technically designed, dimensioned and executed in accordance with DIN 14675-1:2020-01 in conjunction with DIN VDE 0833-1:2014-10 and 2:2017-10 are deemed to fulfil the building requirements unless more stringent requirements are imposed in the building procedure.

11 fire extinguishers

- 11.1 Portable fire extinguishers shall be affixed so as to be readily available at all entrances, marked and kept ready for use at all times. The total fire-extinguishing capacity of the portable fire extinguishers must at least 48 extinguishing agent units per fire zone or per fire section. For equipment with fire extinguishers, the technical regulations for workplaces must be observed.
- 11.2 Water tap connections with permanently installed hoses can be counted as fire extinguishers. The hoses must have a minimum length of 10 m. The flow rate must be at least 50 l/min.

12 Fire safety regulations, fire-fighting plans and operator obligations

- 12.1 In accordance with § 51 LBauO M-V, the operator of the livestock facility must draw up fire safety regulations in agreement with the competent fire department. The measures necessary to rescue people and animals in the event of danger shall be specified therein. Operating personnel must be instructed on the fire safety regulations and the operation of the fire-extinguishing equipment at the start of their employment and at least once a year thereafter.
- 12.2 The locally responsible fire brigade must be instructed in the conditions on site.

12.3 The operator is also responsible for the effectiveness and continuous operational safety of the safety systems.

12.4 For livestock facilities in accordance with these Guidelines, the responsible fire department may require coordinated fire-fighting plans if necessary.

13 Evaluation

These Guidelines shall be evaluated regularly and updated according to the results of the evaluation. The evaluation shall take place for the first time on 1 May 2027.

14 Entry into force

These administrative regulations shall enter into force on the day following publication.