

International symposium :

Horse and equestrian facilities

Building, Housing, Welfare, Environment

*Key words: Architecture, engineering, equipment, comfort, atmosphere,
ergonomics, health, security, behaviour, environmental impacts*

Call for Papers

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International symposium :
Horses and equestrian facilities
Building, Housing, Welfare, Environment

October 6th and 7th, 2014

Le Lion d'Angers (Maine-et-Loire, France)

Faculty of Tourism, Buildings and Services engineering, University of Angers

Institut Français du Cheval et de l'Équitation (French Horse & Riding Institute)

The aim is to offer, on an international scale, debates between researchers coming from different areas and actors of the horse industry concerned by design, development and operation & maintenance of equestrian facilities.

This symposium consists in identifying the stakes and consequences linked to the nature and the use of such equipments on horses, users and the environment.

Therefore, we want to create exchange and reflection on an international level, among academics, architects, veterinarians, engineers, technicians, companies of the equipment sector and stakeholders of the horse industry.

Introduction:

In France, horses are located mainly in breeding structures (475,000 horses), in riding schools (210 000 horses), with horse riders and sellers (30,000 horses), in training places (28,000) and with private horse owners (210,000 horses). In addition, other places dedicated to competition host numerous horses for short periods. These structures have a specific type of accommodation depending on the use of the horse. Few works on these topics exist while the legal and social requirements for horses and users are evolving.

In these structures, domesticating and using horses suppose to place them in partially or totally artificialized environments. If they are well designed, they can contribute to the horse's comfort and limit impacts on his welfare.

From this point of view, we can wonder about the architectural design of the facilities, the materials or the layout which can be decisive on different levels, such as health, security, ergonomics, but also concerning the environmental impacts of a facility. Especially in closed areas, ambient factors which can affect both horses and humans can be analysed. It can be interesting to compare what is done throughout the world and find out what can prove that facilities and activities need to be adapted to the bioclimatic context and to local environmental stakes.

Five topics are suggested in the context of this symposium :

Topic A: Facilities and elements of comfort and environment enrichment

Thanks to a prospective study on the French horse industry by 2030, the question of man/horse relationship and animal welfare, either for a work horse, a sport horse, a race horse or a leisure horse, has been raised through different scenarios (INRA, october 2012).

Whatever the place of the horse in this relationship, the question of its behaviour is central. Ethology brings knowledge about the horse's perception of his environment and the influence of biotic factors (fellow horses, humans...) and abiotic factors (environment, accommodation) on behaviour. The horse is above all a grazing animal living in social groups in a natural environment. Our use of the horse makes us change his environment completely. Recent researches show that it is necessary to compensate the impoverishment of his environment.

Here are recurring issues:

- What links are there between the horse's living conditions, his welfare and his behaviour?
- How can we evaluate the welfare of horses living in artificialized conditions?
- Are current facilities adapted?
- How can we improve living conditions in existing structures or how can we design future housing?
- What are the economic consequences of such changes?
- Are there different types of accommodation depending on the country (climatic conditions, culture and uses)?
- Does automation (water and food distribution, cleaning...) have an influence on man/horse relationship and on behaviour?
- Can innovating solutions mix efficiency of the work in stables and horse welfare?

Topic B: Health and atmosphere in horse housing

The increasing number of activities linked to the horse leads to more and more frequent animal movements and concentrations, which tends to develop epizooties. Competition horses, which are widely used and more sensitive, often live in barns or stables. Nowadays, because of a complicated economical situation, the design of equestrian buildings favours functionality and every-day efficiency for caretakers, which rather leads to indoor stables. The way the buildings are built is linked to ambient factors which expose horses to more allergic or contagious diseases, compared to outdoor horses living in natural conditions.

Contamination by pathogens or allergens in ambient air, humidity level, temperature, gas released by manure, new types of bedding: all those factors have an impact on horses' hygiene, health, performance and welfare.

To address hygiene and diseases of indoor horses, papers can be based on the following themes:

- Practices and effects of confinement and concentration
- Impacts on the quality of air
- Influence of the quality of bedding
- Impacts of the quality of materials and equipments
- Innovations in preventing indoor diseases

Topic C: Architecture of equestrian buildings and environmental approach

Horse accommodation has requirements common to all types of construction. A good design guarantees the quality of the use of buildings and contributes to the horses' health and welfare.

Therefore, in any construction project, either new or for rehabilitation, environmental quality must be thought of. The quality of air, the brightness, acoustic, odour, thermal and hydric comforts can become factors of stress if the buildings are not well designed. The role of the designer is to take those parameters into account. This can seem to be a challenge when, for example, one has to research the optimal ventilation rate in a stable, and how to maximize indoor comfort and energy gains. Eco-design requires developing models and using appropriate tools such as dynamic thermal simulations which integrate the horses' heat gains.

Another aspect to take into account regarding the horse's way of life in an artificialized environment is his need to express its behaviour (social contact, movement, feeding, resting...). Here, the architecture can be a solution by working on the spatial quality of the building and the design of individual or collective structures.

This part of the symposium aims at identifying good practices and innovations which contribute to better living conditions for horses in equestrian facilities, respecting security, rusticity and robustness requirements. Putting forward verified links between architectural initiatives and horse welfare will be appreciated. Priority will be given to environmental approaches and papers on the following themes can be submitted:

- Which evolutions in architectural practices can improve welfare and security of the horse?
- How to eco-design and to favourize parameters such as luminosity, acoustic, odour, thermal and hydric comfort?
- Which eco-materials are adapted to equestrian facilities?
- Which local materials recycling and recovery practices can be promoted?
- How can we recycle or requalify existing buildings?
- What are the interactions between urban regulations and eco-design?
- How to control water and other resources consumption?

Topic D: Ergonomics of equestrian constructions, human health and security

Ergonomics of equestrian buildings, people's health and security are to take into account on different points of view, linked to the design and the construction of buildings and facilities.

As regards ergonomics, design and construction must respect some principles the architect or the construction supervisor integrate to their project: managing traffic flow, taking into account the variety of publics and uses, efficiency in professional practice, ...

People's security is of main concern when designing a structure and its equipments. Concerning professional activities, it is important for the facilities' design to prevent from diseases.

This part of the symposium aims at evaluating good practices as regards ergonomics and human health and security. Papers can address the following themes:

- How to manage and maximize the different traffic flows (vehicles, pedestrians, riders)?
- How can the facilities' design make some tasks less time-consuming and improve work efficiency?

- How can the facilities' ergonomics adapt to the variety of practices and publics (disabled and non-disabled people, sensitive publics)?
- What is the link between the work environment and the occurrence of human diseases? How can the designer limit difficult work conditions?
- Which layout and equipment can contribute to improve people's security in equestrian facilities? And how efficient are they?

Topic E: Environmental impacts of equestrian structures

Equestrian structures interact with their environment and they can therefore have environmental and health impacts. Nuisances can be linked to the facilities themselves, to their use or to the presence of numerous horses.

Concerning environmental requirements, the buildings' integration in the landscape and their interactions with the biotope must be addressed.

The structure's activities themselves have an impact on the ecosystem.

Finally, the presence of horses and their effluent can also be a source of health and environmental issues. For example, the town of Walkerton (Ontario, Canada) witnessed half of its population suffer from a contamination by *Escherichia coli* linked to horse manure in May 2000 (2,300 contaminated people out of 5,000 inhabitants). But effluent production, which is linked to the type of bedding, can lead to valuating strategies which are often associated to local industries (methanisation, composting ...).

This part of the conference aims at discussing current research works dealing with how to master environmental and health impacts of equestrian facilities. The following themes can be addressed:

- How can we identify, evaluate and reduce the different nuisances (acoustic, visual, ecological...)?
- How to integrate successfully an equestrian facility in its environment?
- How to re-use horse effluent?
- How do environmental reports and life cycle analyses contribute to defining strategies for equestrian businesses?

To submit an abstract:

Your paper must be written in English or in French (with an abstract in English), as an RTF or Word file, and sent to the following address: equi-infra@sciencesconf.org

It should include:

- the name of the author(s), their professional situation, and the institution they work for;
- the title of the paper;
- 5 key words;
- a summary which should not exceed 500 words, presenting the topic and the stakes, the methodology and the expected results.

Papers should be sent by December 15th, 2013. The scientific committee's comments will be sent in February 2014.

A mini CV and a 3,500-words article with illustrations will be requested in the spring of 2014 in order to make the "Book of Abstracts"; its distribution rights will belong to the organiser.

Scientific committee

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