

ANSI/ASAE EP378.4 JUN2010 (R2014)
Floor and Suspended Loads on Agricultural Structures Due to Use



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Floor and Suspended Loads on Agricultural Structures Due to Use

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1 Purpose and Scope

1.1 This Engineering Practice presents probable floor and suspended loads due to building use and methods of applying the loads in building design.

1.2 This Engineering Practice includes recommended design loads resulting from livestock, suspended caged poultry, vehicles, and manure stored on a floor. It does not include loads on manure storages, or wind and snow loads, or building design loads covered by ANSI/ASCE-7. Specifications for these applications are included in ASABE Engineering Practice EP393, Manure Storages.

2 Terminology

2.1 Terms used in this Engineering Practice are defined as follows:

2.1.1 dead load: Gravitational force due to mass of all material used in the building construction.

2.1.2 live load: Gravitational force due to mass of equipment, livestock, products, and other loads resulting from the use of the structure.

3 Floor and Suspended Loads

3.1 The recommended design live load due to the use of the area is listed in Table 1.

3.1.1 Bulk milk tanks. Design floors under bulk tanks in milkrooms according to the mass of the tank plus contents and the support system of the tank.

3.1.2 Manure. Where manure can accumulate, increase the design load by 10.2 kN/m^2 (65 lbf/ft^2) per meter (foot) of manure depth.

3.1.3 Cages. Base design loads for floor-supported cages on mass and support intervals.

3.1.4 Suspended poultry cages. Loads for suspended poultry cages are based on 4-row (double deck) or 6-row (triple deck) cages with two birds per 200 mm (8 in.) cage, or three birds per 300 mm (12 in.) cage, and 50 mm (2 in.) of manure accumulated on dropping boards under upper cages. For other configurations, consult the manufacturer.