

Barn Features to Accommodate Modular Loading of Poultry

(Prepared by AOCP, CFO and PSA)¹

A. Recommendations for New Barns

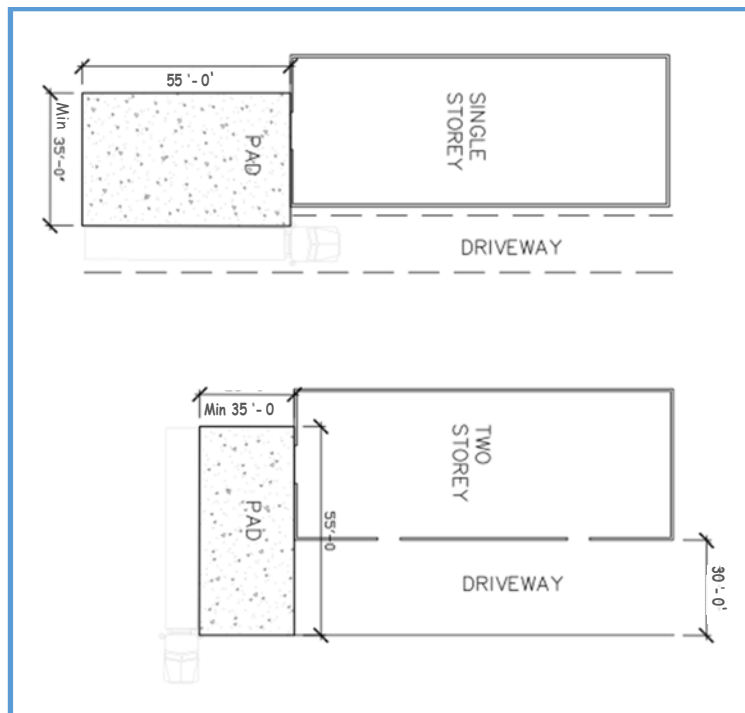
Single storey barns are recommended as they maximize poultry welfare benefits from modular loading due to shorter loading times, less handling of birds resulting in lower stress, and reduced exposure of birds to weather conditions during loading.

1. Build a single storey barn with minimum 9 foot ceilings.
2. Provide minimum doorway opening in the end wall of 8 feet (2.4 m) tall x 10 feet (3.0 m) wide for forklift access.
3. Provide hard surface loading area (concrete or equivalent surface) measuring at least 35 feet (10.7 m) x 55 feet (16.8 m) immediately outside doorway to allow for forklift travel and turning during truck loading. The surface needs to extend beyond the width of the barn to include the entire loading area. It is important that the loading area extends right out to where the truck is parked so the forklift is on a level surface at all times. Also plan for sufficient room to stage another truck for loading. See diagram on page 2.
4. If barn is longer than 300 feet (91.4 m), provide an access door and hard surface loading area at both ends of the barn to minimize forklift travel distance inside the barn.
5. Provide a smooth transition from inside the barn to the outside loading area (no raised door sills or abrupt grade changes) to prevent modules from bouncing during transport into and out of the barn.
6. Ensure a minimum clearance height of 8 feet (2.4 m) under all suspended equipment inside the barn when it is in the raised position (feeder equipment, watering equipment, ventilation monitoring equipment, etc.) so it is not hit by the forklift during loadout.
7. Ensure a minimum clearance height of 8 feet (2.4 m) under all fixed equipment inside the barn (gas lines, heater equipment, circulation fans, etc.) so it is not hit by the forklift during loadout.

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- There should be a minimum clearance from the ground to any hydro lines, tree limbs or other obstructions of 15 feet in the driving areas and 20 feet in the loading areas to accommodate solid lift roof trailers. All modular unit trailers are expected to be solid lift roof trailers.

Diagram:



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B. Retrofitting Existing Broiler Barns

Process requirements for farmers **before** beginning renovations to existing barns:

1. Discuss with your processor their future plans for modular loading and confirm the types of modifications that may be required for your particular barn(s).
2. **Renovations for side door loading of the second storey are the preferred option.**
3. Have your barn structurally assessed by an Engineering Firm or Architectural Technologist to determine what changes are required to accommodate modular loading on the second floor. Having the original building blueprints that confirm how the original column footings were constructed is very helpful for the engineer during the assessment process.
4. If structural modifications are necessary, then stamped drawings should be prepared by the Engineering Firm or Architectural Technologist showing the location and type of change necessary to support the expected loads. In most cases, a building permit will have to be obtained to complete the barn modifications. The drawings can also be used to secure the building permit.
5. After the work is complete, a signed engineer's report (may include the stamped drawings) is required to certify that the barn renovations were done correctly and will meet the load requirements necessary to proceed with loading chickens into modules on the second floor. This will provide assurance to all parties that the barn is properly prepared for modules and limit any potential liabilities.
6. Your processor and catching company will request a copy of the engineering report and final building inspection for their files.

First floor:

Since many older barns were built with less than 9 foot (2.7 m) ceilings on the first floor, the minimum clearance heights will be less than stated above for new barns. Forklift mast height and cab height will need to be verified as different makes and models will vary in height.

1. Provide a minimum doorway opening in the end wall of 8 feet (2.4 m) tall x 10 feet (3.0 m) wide for forklift access.
2. Provide hard surface loading area (concrete or equivalent surface) measuring a minimum of 35 feet (10.7 m) x 55 feet (16.8 m) immediately outside the doorway to allow for forklift travel and turning during truck loading. The surface needs to extend beyond the width of the barn to include the entire loading area. It is important that the loading area extends right out to where the truck is parked so the forklift is on a level surface at all times. Also plan for sufficient room to stage another truck for loading. See diagram on page 2.
3. If the barn is longer than 300 feet (91.4 m), provide an access door and hard surface loading area at both ends of the barn to minimize forklift travel distance inside the barn.

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4. Provide a smooth transition from inside the barn to the outside loading area (no raised door sills or abrupt grade changes) to prevent modules from bouncing during transport into and out of the barn.
5. Ensure a minimum clearance height of 7 feet (2.1 m) under all suspended equipment inside the barn when it is in the raised position (feeder equipment, watering equipment, ventilation monitoring equipment, etc.) so it is not hit by the forklift during loadout.
6. Ensure a minimum clearance height of 7 feet (2.1 m) under all fixed equipment inside the barn (gas lines, heater equipment, circulation fans, etc.) so it is not hit by the forklift during loadout.
7. There should be a minimum clearance from the ground to any hydro lines, tree limbs or other obstructions of 15 feet in the driving areas and 20 feet in the loading areas to accommodate solid lift roof trailers. All modular unit trailers are expected to be solid lift roof trailers.

Second Floor:

The preferred option is to renovate the second storey for side door loading.

Side Door Loading Option

1. Install a minimum 30 foot (9.1. m) wide, all-season driving lane (compacted gravel) along one side of the barn (long axis) to allow for forklift access to the side loadout doors on the second storey.
2. Starting 25 feet (7.6 m) from one end wall and spaced every 50 feet (15.2. m) down the side of the barn, install load out doors that are a minimum of 6 feet (1.8 m) wide x 7 feet (2.1 m) tall. Ensure that there is no door sill across the bottom of the second floor doorway that could impede movement of modules into and out of the barn.
3. Design and renovate the second floor structure in the immediate vicinity of loadout doors to be capable of supporting a minimum distributed live floor load of 4.23 Kilopascals (88.35 lb/square foot). This represents the maximum loaded weight of modules sitting on the floor. This is a significantly higher floor load than is presently required in the National Farm Building Code for the cleanout tractor and litter.

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Train Track Loading Option

The train track system is the least preferred option for modular loading on the second floor for numerous reasons:

- the weight of the loaded modules being rolled out of the barn creates a greater strain on the floor;
 - the set-up of the tracks at the start of loading causes stress to the flock and leads to piling of birds along the sides of the barn;
 - the modules have to be specifically built to operate on a track system and different makes of modules and tracks may not be interchangeable; and,
 - transporting the tracks between farms creates a biosecurity risk.
1. Install a minimum 7 feet (2.1 m) high x 10 feet (3.0 m) wide doorway in centre of end wall on second floor. This could be directly above the ground floor loadout door.
 2. Have a structural engineer design the second floor to support the loaded modules, portable roller track system, 4 inches (100 mm) of litter on floor and birds and people in the vicinity of the modules.
 3. Minimum design live loads for this calculation include a uniform, distributed load of 2.0 Kilopascals (41.78 lb/square foot). This represents the weight of the floor birds plus litter (from National Farm Building Code Table 2.2.1.A) and a line load of 5.1 KN/m (located at the center line of the track system) for the loaded modules plus the track.
 4. If a small tractor is also going to be used on the second floor to push the loaded modules out of the barn, an additional two-wheel, live load of 4.0 KN should be included in the design in addition to the above-listed live loads. This represents equipment up to 700 kg including the operator (National Farm Building Code 2.2.1.4). The actual weight of the tractor should be verified with the catching crew before it is placed on the second floor.

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