

Watershed Agricultural Program SOP

2.1.01.08

Roofed Barnyard SOP (WAC 3010, 3060)

Purpose

The purpose of this SOP is to provide guidance on the planning and design of Covered Barnyard Structures. This document will serve as a baseline of what WAP will provide producers

Planning & Technical

1. **Siting**: A covered structure shall be sited in a location that is best suited for water quality protection while taking into consideration; the effects it will have on the total cost of the project, impacts on the farm operation, and the participant's ability to properly manage the BMP. If the proposed site causes a significant increase in cost, other locations must be explored first and justification provided before the more costly site can be chosen. Final siting of structure shall be determined by project engineer and whole farm planner.
2. **Sizing**: Sizing will be per the 2.1.02.2 *WAC Manure and Barnyard Sizing Guide*. Any deviation from sizing guidelines must be approved by the Whole Farm Planner and engineer.
3. **Structural Design**: Structural components shall be designed to the most recent version of the ASCE 7 – Minimum Design Loads for Buildings and Other Structures while adhering to all local and state codes for agricultural structures.
4. **Site Preparation**: Structure site preparation shall include the removal of all organic or unusable material for building foundation. Structural fill shall be placed below structure floor to provide a solid base to construct upon and to elevate structure to aid in proper drainage.
5. **Floor Considerations**: Floors shall either be concrete or compacted crushed gravel. The use of any other type of floor surface must be approved through the WFP revision process and must be cost comparable to concrete. Concrete floors shall be grooved to aid in floor traction. Alternatives are possible if justified economically and/or based on specific farm management.
6. **Curbing**: Concrete curbs shall be installed around the perimeter to facilitate the containment of animal waste from leaving the structure. Dairy Barnyard curbs shall be one (1) foot in height and bedded pack areas shall be two (2) feet in height. Deviations from these height standards must be approved by the Whole Farm Planner and Engineer.
7. **Roofing & Siding**: Roof shall be sufficiently sized to cover barnyard area and to facilitate drainage for said structure.
 - a. **Material**: 29 Gauge Painted Galvanized Steel (Color Per Landowner as long as the color is within reason and not a special order item)
 - b. **Clear Panels** can be installed per producer's request, spaced every 4th roof panel (1 row per roof face).
 - c. **Overhangs**: Overhangs shall be 24 inches on roofs to facilitate roof runoff

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management draining to underground outlet or drainage swale. On roofs where there is a feed lane, the overhang size shall be width of feed lane minus one (1) foot. Deviations from these sizes may occur as it may depend on site conditions and must be approved by project engineer.

8. Windbreak: A wall windbreak may be installed in locations where prevailing winds enter the structure, causing the animals to avoid using the structure and/or snow accumulation inside of the structure. Windbreak size and location shall be determined by project engineer. Windbreaks shall be constructed as per item 7a in this SOP while taking into account Section 1, Siting. If more than two (2) sides of a structure are to be sided, alternative sites and orientations shall be explored prior to final barnyard siting. If a windbreak is to be built in a location where it is used as a means of egress, a door may constructed to allow it to function as both The type of door chosen shall be the most economical choice for its application (i.e. Sliding pre-fabricated door, then garage track door, and finally roll up).
9. Structure Fencing: Interior animal fencing shall be two to three (2-3) rows of 2x8 Pressure Treated board fencing or steel guiderail attached to either structure posts or steel posts set in concrete. Final fencing type shall be determined by project engineer and whole farm planner.
10. Feeding Areas: WAP may provide apparatus for feeding livestock which can include Slant Bars on a feed rail or 'hay-saver' bale feeders when animals are fed within the structure and justification is made to reduce the storage size because of reduced feed waste. Be sure to make adjustments (i.e. Slant bars with rail) on a feed rail to ensure all age groups are kept within the structure. Headlocks or other feed lane attachments may be installed at the participant's expense.
11. Lighting and Electrical: Lighting and electrical service shall be installed as per the criteria below.
 - a. Installation – WAP will provide electrical service installation on new structures as long as it is necessary to the operation of the producer and structure. WAP will not retrofit existing covered barnyards/structures and perform electric service installation on existing structures unless it is a structure going through re-enrollment and determined by whole farm planner and engineer that is necessary for farm operations. All electrical items installed shall meet National Electric Code (NEC) and shall adhere to all local and state codes.
 - b. Electric Service – Shall be sized during design to meet the electrical demands of the proposed structure.
 - c. Lighting – WAP will provide one (1) row of lights centrally located, installed on the bottom chord of trusses within the proposed structure. Lights shall be spaced end to end, 20 feet apart. If roof span exceeds 60 feet in width, a second row of lights shall be installed at same spacing. Light shall be controlled with a maximum of two (2) three-way switches located as per producer. Lights shall be four (4) foot, T8 Style Bulbs. Bulbs shall be installed inside a two (2) bulb, weatherproof enclosure. Lighting shall only be installed in feeding and barnyard areas only.

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- d. Electrical Outlets – WAP will provide GFCI outdoor weatherproof outlets at locations required for the operation of the BMP (ie. at heated waterer, fence charger or pump locations). In addition, WAP will install a GFCI outlet for every 30 foot of building length rounded down (i.e. 100 foot building will have 3 additional outlets per length). One additional GFCI outlet will be provided, one will be installed at the electrical service panel.

12. Watering Stations: Watering stations shall be installed inside the structure where necessary to provide water to animal group(s) determined by planner and engineer. Waterers shall be sized based on number of animals and intended use. All waterers shall be sited inside of proposed structure, or outside with a protective roof covering.

Gates: Gates shall be installed where necessary to facilitate the separation and control of livestock within the barnyard structure. Quantity and Location shall be determined by planner and engineer. Barnyard gates shall be heavy duty (Norbcu or engineer approved equivalent. All other gates shall be Medium Duty (5-6 Bars), 16 Gauge or heavier. In complex gate systems, it is recommended that the gate supplier be treated as a subcontractor and encouraged to make a site visit during construction to aid in the facilitation of gate installation, ensuring proper installation of all required components for function.

Additions/Substitutions

Any items not stated in this document is considered an addition above and beyond what WAP will minimally provide to the producer. If the producer would like an item installed that is not stated within this document, landowner or producer may approach WAP representative about said item and it shall be determined by WAP Management on a case by case basis to fund any additions. If WAP will not fund the addition, the landowner or producer can do so at their own expense as long as it does not compromise the integrity and use of the proposed structure.