

Barn Air Quality Cheat Sheet

The Foundation: Your 4-Step Plan to Clean Air

- 1. Climate-Specific Design** 🌡️ : Match your barn design to your region's biggest challenge (humidity, cold, or dust).
 - **Humid:** Use mechanical fans (6–8 ACH) and a north-south orientation.
 - **Cold:** Use insulated walls and adjustable vents.
 - **Dry:** Use air filters, strategic shade, and gravel bases.
 - 2. Proper Ventilation Rates** 🌬️ : Calculate, don't guess. Aim for **6–8 air changes per hour (ACH)**.
 - **Formula:** $CFM\ Required = (Barn\ Volume \times ACH) \div 60$
 - **Natural First:** Maximize stack effect (ridge vents) and cross-ventilation (opposing windows).
 - **Mechanical Second:** Add fans in humid or still climates to supplement natural airflow.
 - 3. Strategic Layout** 🏠 : Keep air moving and dust away from horses.
 - **Hay Storage:** Always store hay in a separate building or shed to cut stall dust by 70%.
 - **Ceilings:** Minimum 10 feet (12 feet is optimal) to allow contaminated air to rise.
 - **Aisles:** 12-foot aisles improve circulation and reduce dust.
 - 4. Quality Materials** ✨ : Choose flooring and bedding that fight contamination.
 - **Best Flooring:** Concrete with rubber mats for easy cleaning and zero dust.
 - **Low-Dust Bedding:** Use large flake shavings, hemp, or paper.
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Quick Fixes & Common Mistakes to Avoid

Quick Fixes (1–3 Months)

Add circulation fans and ridge vents.

Move all hay storage out of the barn.

Upgrade to low-dust bedding.

Costly Mistakes to Avoid

The "Sealed Barn" Trap: A minimum of 4 ACH is always required.

Overhead Hay Storage: Increases particulate levels by 400%.

Ignoring Wind Patterns: Costs you 50% more in fan power.

Your Monitoring Checklist

DIY Test: Place a shallow water dish in a stall overnight. A strong ammonia smell in the morning indicates dangerous levels.

Target Ranges	Excellent	Acceptable	Act Immediately!
Ammonia	<3 ppm	3–7 ppm	>15 ppm
Air Movement	1-3 mph		
Dust	None visible		

Remember: Smart design is the best prevention. Your horses' health is worth the investment.