



BY AMERICAN MEAT SCIENCE ASSOCIATION

Carcass Cooler Space & Design Guidance

What is a hot box or “blast chiller” and why should I consider space utilizing similar concepts?

A hot box or blast chiller is a carcass cooler entry point with higher airflow and temperatures between 28-30°F. Small & Very Small facilities can implement the hot box concept at a lower cost by using an initial pass-thru cooler or cooler section where hot carcasses are hung with more separation at temperatures between 32-34 °F for 24 hours. This approach leads to consistent cooling of hot carcasses while maintaining stable aging cooler carcass temperatures and reducing strain on cooling units.

[BeefCarcassChilling_White_Paper_final.pdf \(agriflife.org\)](#)

Design Materials:

- ✓ Walls, floors & ceilings must be easily cleanable.
- ✗ Avoid using materials that will rust and do not paint rails or other surfaces.

Base Carcass Cooler Construction Measurement Guidance

	Ceiling Height	Top of Rail to Floor Height	Rail-to-Rail/Wall Spacing	Rail Load Brace Spacing*	Hot Box- Per Carcass Rail Space	Aging Cooler- Per Carcass Rail Space
Beef/Bison	≥14 feet	12-13 [†] feet	3 feet	2 feet	4 linear feet	3 linear feet
Pork/Lamb/Goat[‡]	‡	‡	2-3 feet	3 feet	1.5 linear feet	1.5 linear feet

*This is a general guidance. Always review load design plans with a qualified engineer to ensure customized load considerations are properly calculated.
[†]Larger-framed cattle, such as Holstein, may require 13-15ft rail height.
[‡]The majority of facilities harvesting hog/lamb/goat also harvest beef and therefore will go with the beef recommended rail heights. Boars/sows also can require the same rail height as average beef. Dedicated hog/lamb/goat facilities may choose to install 8-10 ft rails when confident no larger species will go through the facility.

Additional considerations for a hot box/aging carcass cooler size and design:

How many days will each species be aged? How does that affect carcass movement from the aging cooler to the cut floor?

Use your goal/ideal slaughter capacity numbers and map out space utilization AND carcass movement for an entire production week, plus at least one day into the next production week or one complete aging cycle, whichever takes more space. Remember that beefcarcasses may be hanging 7-14 days or more.

Will you be processing multiple species?

- Carcasses of different species cannot touch
- Map out various capacity utilization scenarios, focusing on goal numbers for the species that hangs the longest.

***Recommendation: Charge a per carcass hanging fee (per day or flat) for any carcass aged longer than 14 days.*

Building new, renovating or adding on?

Reputable engineers are worth hiring!

- Verify weight load requirements, construction & materials for durability and longevity
- Verify cooling load (Cooling Load Calculation - Cold Room HVAC (youtube.com) requirements will be met to guarantee optimal cooling with minimal condensation issues.

