

CASE STUDY

AMERICAN FOODS GROUP

Beef Processing Plant

Wright City, MO

From Complex Coordination to Seamless Delivery

icon Mechanical and sister company iENG Design served as mechanical engineering partner for this new beef harvest facility for American Foods Group.

The project's scale demanded precise coordination across multiple systems, trades, and safety standards—with no room for misalignment in a USDA-regulated facility. icon met this challenge through a structured, team-based approach: establishing dedicated task group leads, holding weekly coordination meetings, and maintaining continuous communication from initial design through final startup.

MARKET
Food & Beverage

CAPACITY
800,000 SF

DELIVERY
Design Assist

Construction Manager
Gray



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American Foods Group –
Beef Processing Facility

EXECUTIVE SUMMARY

icon Mechanical (icon) and sister company, iENG Design, were hired as the mechanical engineering subcontractor for American Foods Group's new beef harvest facility—America's Heartland Packing. icon provided design and installation of HVAC and domestic plumbing systems.

Total square footage of the project is **800,000 square feet**. The facility features 2,400 cattle processing capacity per day and high-tech automation. icon employed a team-based approach, linking engineering, VDC detailing, fabrication, QAQC, and field installation to ensure that all facets aligned with scope and built for high efficiency.

INTRODUCTION

Advances in mechanical engineering have transformed modern beef processing facilities by improving automation, increasing production efficiency, and enhancing sanitary design. Today's facilities require highly coordinated mechanical systems that maximize uptime while supporting food safety, maintainability, and long-term operational performance. The America's Heartland Packing facility reflects icon's ability to deliver these complex environments through integrated engineering, disciplined project execution, and experienced leadership.

From project inception, icon established clear objectives centered on quality, constructability, schedule certainty, and long-term system performance, providing the foundation for a successful mechanical installation.



icon Objectives

- Operations Efficiency & Compliance
- Energy Efficiency
- Infrastructure Durability / Sustainability
- Safety Compliance

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METHODOLOGY & DESIGN APPROACH

Safety-First Execution

Safety was integrated into every phase of the project. Designs were developed in accordance with applicable codes and industry standards while emphasizing maintainability, accessibility, and safe installation practices. In the field, icon reinforced this commitment through daily pre-task planning, Job Safety Analyses (JSAs), and weekly Toolbox Talks, ensuring every activity was performed with safety and quality as equal priorities.

Integrated Project Planning

icon assembled an integrated team of engineering, VDC, prefabrication, QA/QC, commissioning, and field operations to evaluate constructability, identify project risks, and develop strategies that protected schedule and budget. Early collaboration enabled the team to coordinate building interfaces, resolve design challenges, and establish an execution plan that minimized rework while improving installation efficiency.



Engineering & Mechanical Design

icon provided the complete mechanical engineering design for the facility's HVAC and plumbing systems. Because processing and administrative spaces required significantly different environmental conditions, the engineering team developed specialized systems tailored to each area.

Within the production facility, HVAC systems were engineered to maintain temperatures supporting food safety, sanitation, and process reliability. Office areas were designed to provide occupant comfort through high-efficiency filtration and ventilation while satisfying USDA sanitary requirements.

The plumbing design included prefabricated tempered-water heater skids serving emergency eyewash and safety shower stations located throughout the facility.

Constructability & Installation

One of the project's most complex milestones involved setting 70 rooftop units in a single day using helicopter lifts. Equipment was staged, tagged, and oriented in advance to maximize safety and minimize lift duration.

icon coordinated closely with trade partners throughout installation, including insulation and controls contractors, ensuring mechanical systems were installed, insulated, and commissioned in accordance with design requirements.

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CHALLENGE

Synchronizing Multiple Disciplines Under One Execution Plan

The American Foods Group project required the seamless coordination of multiple engineering disciplines, trade partners, and construction activities to keep a fast-paced project aligned with schedule, safety, and quality objectives. Mechanical engineering, HVAC, plumbing, refrigeration, controls, and field installation all had to progress in parallel while maintaining USDA sanitary requirements and strict project safety standards. With numerous teams working simultaneously, maintaining communication and synchronization across every phase of the project was essential to successful execution.

icon SOLUTION

icon established an integrated project management approach before construction began, bringing together engineering, VDC, QA/QC, project controls, fabrication, and field operations to develop a unified execution strategy. Dedicated discipline leads were assigned to each major scope area, creating clear lines of communication and accountability throughout design, fabrication, and installation.

Weekly coordination meetings served as the project's central communication hub, where project teams reviewed clash detection, refrigeration system coordination, HVAC routing, sanitation compliance, installation sequencing, and overall project progress. These collaborative planning sessions enabled the team to identify potential conflicts early and implement solutions before they could affect field productivity or schedule.

One example involved the installation of branch piping within congested work areas. Through proactive planning, project leadership recognized that limited installation space could disrupt workflow and delay progress. The team established a dedicated staging area and revised the installation sequence, allowing branch piping to be organized, stored, and installed efficiently while maintaining safe working conditions and uninterrupted progress.

Key Results

- ✓ Early issue identification through weekly coordination
- ✓ No major installation conflicts from branch piping
- ✓ Continuous communication across all project disciplines
- ✓ Maintained schedule and safety objectives

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COMMUNITY IMPACT

Job Creation / Local Economy Boost

The new beef processing facility represents a significant investment in the region's economic growth and food production capacity. Expected to create approximately 1,300 new jobs, the facility will generate long-term employment opportunities while strengthening the local economy.

In addition to expanding local employment opportunities, the plant will increase regional beef processing capacity, helping strengthen the domestic food supply chain while supporting continued growth within the agricultural sector.

HVAC Deliverables

- 70 packaged rooftop units
- VAV air terminals
- Make-up air units
- Exhaust systems
- Large gas distribution system
- Ventilation and gas piping to process utility equipment (boilers & compressors)

Plumbing Deliverables

- Domestic water piping
- Water heaters
- Sanitary piping
- Roof-drainage piping
- Emergency eyewash and safety shower systems with tempered water



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