

Salvaging Farm Buildings After a Fire

ASSESSING DAMAGE AND OPTIONS FOR REBUILDING

Before trying to salvage a structure after a fire, assess the true worth of what remains after fire, heat, smoke and water damage. The true worth will be higher if the structure can be effectively used as part of a reconstructed facility.

An engineer or experienced contractor can help you assess true worth. These experts can also help you consider options for reconstruction or new construction. Insurance coverage and other assets will probably be the final factor in your decision-making.

INSPECT EXISTING MATERIALS

- ◆ *Fiberglass and blown-in insulation.* If insulation has gotten wet, it will have to be removed and replaced with dry materials. If wall surfaces must be replaced in the process, consider upgrading wiring and plumbing at this time.
- ◆ *Steel.* When exposed to intense heat, steel loses its strength and any surface-applied corrosion protection. Steel beams cannot be relied upon to support loads for which they were originally designed. Replace these members if exposed to extreme heat to assure structural integrity of the building.
- ◆ *Metal roofing and siding.* Both rely on protective layers of galvanizing and/or paint to protect corrosion. Plan to replace these materials if exposed to heat, even if they were not in direct contact with flames.
- ◆ *Wood.* Light charring of wood will not significantly affect its strength. Replace wooden supports which have been deeply burned.
- ◆ *Metal truss plates.* Many roof trusses are fabricated with metal truss plates. The metal truss plates may lose more strength in a fire than the adjoining wood supports. Use a reliable contractor or engineer to determine the extent of damage at these critical joints.
- ◆ *Concrete and mortar.* These materials will flake off and/or turn to powder when exposed to heat. The thickness of the damaged concrete will be determined by the intensity and duration of heat exposure. Tap concrete with a hammer to test its integrity. A dull thud implies heat damage. A ringing sound means the concrete may be in reasonable condition.

SALVAGING EXISTING STRUCTURES

Once the value of the remaining structure is established, assess how the remnants can be rebuilt to meet your current and future needs. This is a good opportunity to consider updating or upgrading of facilities. For example:

- ◆ *Livestock buildings.* Consider livestock resting, water and feeding space needs; update ventilation, preferably using natural ventilation; install moisture-proof wiring and an equipotential plane to protect against stray voltage; install freeze-protected water systems; consider animal traffic and manure handling.

- ◆ *Milking facilities.* Consider a milking parlor or flat barn milking system; upgrade wiring and equipotential plane; improve lighting and ventilation; upgrade milking equipment and energy-conserving devices, such as air injectors, bulk tank heat exchangers and well-water precoolers.
- ◆ *Silos.* Consider horizontal feed storage for its improved rate of filling and emptying and lower cost of construction and operation; size new silos according to daily feeding needs.
- ◆ *Storage sheds.* Consider access doors; consider a shop; use proper wiring design and installation; consider size of items to be stored; consider separate pesticide storage.

BUILDING NEW STRUCTURES

If the remnants cannot be economically reworked to satisfy your needs, consider building a totally new structure. Be especially critical of the remnants when making this assessment. Consider:

- ◆ *Location.* Locate animal structures so odors blow away from the house and neighbors' houses; locate to take advantage of wind for natural ventilation in livestock buildings; consider space needs for future structures.
- ◆ *Drainage.* Locate on high ground to shed water from the site and to avoid flooding from upland areas.
- ◆ *Traffic patterns.* Consider how equipment, animals, feed, grain and manure will be routed around the farm.
- ◆ *Current size of structure and future expansion needs.* Develop a farmstead drawing of how your farmstead will look in 10 to 20 years.
- ◆ *Expense.* Before deciding on a final option, consider the economics of several options. Make your decisions based on lower annual cost options — not the lowest initial investment; consider your long-term needs when making a short-term decision.

Additional resources:

Your county agricultural agent, Midwest Plan Service

Related publications:

UW-Extension publications—

“Contracting for Agricultural Construction,” (A3490);

“Farmstead Planning—Zoning and Regulations Checklist,” (A2725).

Northeast Regional Agricultural Engineering Service publication, “Fire Control in Livestock Buildings.”

FIRE CONTROL MEASURES

Be sure all new construction features fire-retardant material and design concepts that result in fire safety. Early warning devices such as smoke detectors and heat detectors should be part of new designs, as well as ventilation systems that shut down during a fire.