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Ohio AgrAbility Fact Sheet Series

Extending Universal Design Principles onto the Farmstead

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Universal Design is a worldwide movement promoting design concepts and principles to support an expanding demographic of people living with a wide array of disabilities, age-related limitations, and chronic health conditions. Universal Design is the creation of products and environments meant to be usable by all people, to the greatest extent possible, without need for adaptation or specialization. The primary focus of Universal Design has revolved around elements of the home and development of user-friendly products. Many homes, offices, and public buildings have undergone simple transformations that enable access to all persons. This re-design of an environment can range from small gadgets to extensive transformations.

The seven principles of Universal Design

These principles can be applied to evaluate existing environments or products, serve as guidelines in the development or renovation of existing environments, and serve to educate consumers and professionals wanting to understand the characteristics of this design approach.

Principle 1: Equitable Use

The design is useful and marketable to people with diverse abilities.

Principle 2: Flexibility in Use

The design accommodates a wide range of individual preferences and abilities.

Principle 3: Simple and Intuitive Use

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Principle 4: Perceptible Information

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Principle 5: Tolerance for Error

The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Principle 6: Low Physical Effort

The design can be used efficiently and comfortably, and with a minimum of fatigue.

Principle 7: Size and Space for Approach and Use

Appropriate size and space is provided for approach, reach, manipulation, and use, regardless of the user's body size, posture, or mobility.

Extending Universal Design concepts to the farmstead

While Universal Design concepts may start in the home, they can be utilized in all areas of the farmstead including the garage, farm shop, equipment shed, livestock facilities, and feedlots. In the agricultural setting where both household and occupational operations occur simultaneously, and where multiple household members are affected by modifications, the seven principles of Universal Design are utilized to try to accommodate all individuals involved.

The goal of using Universal Design concepts for an existing farmstead is not to entirely redesign the farmstead but to make a range of changes that result in the farmstead being a comfortable, user-friendly, and a safer place to live and work. Assistive technologies have been developed for the farmstead to help individuals maintain or increase productivity. The use of Universal Design concepts complements the assistive technologies.

Applying Universal Design techniques throughout the entire farmstead can be beneficial to all individuals and promote independence for those with physical or mobility limitations. Universal Design anticipates the reality and incorporates solutions to change existing situations on the farmstead into convenient ones. Universal Design can improve the usability of the farmstead by creating an environment that works seamlessly with assistive technology to allow individuals to maintain productivity and maximize safety.

Recommendations for applying Universal Design to the farmstead

- Step-free entry areas with accessible approaches and remote-control operated overhead doors.
- Walking and working surfaces should accommodate the area being used.
 - Non-slip surfaces in potentially wet areas.
 - Comfort/anti-fatigue matting at work areas for long periods of standing.
 - At least 60 inches of clearance around large equipment in storage or service areas.

- Lever style door handles instead of twist knobs on all doors.
- Large “D” or “L” style handles on barn doors, gates, and storage cabinets.
- Windows that require minimal effort to open and close.
- Flat rocker panel light switches instead of toggle switches, located 42 to 48 inches from ground level.
- Additional lighting or task lighting in specific work areas.
- Adjustable height shelving and cabinets for storage areas—no overhead storage that takes access from stairs or ladder. At least 36 inches between rows of shelving or storage bins.
- Most frequently used items are 18 to 48 inches above floor in storage areas, to least used items on higher shelves, and rolling or mobile items are on the floor.
- Mobile tool storage is no less than 6 inches from the ground and no higher than 48 inches from ground level.
- Utility carts to move parts and tools from service area to other area—storage, workbench, parts cleaner, or welding station.
- Multi-height workbenches. At least one work surface area 28 inches above ground with a clear opening below where a user can work seated.
- Switches and outlets at the front of workbenches instead of the traditional location at the back of the bench on the wall.
- Power tools that are pneumatic or battery operated.
- Hand tools/equipment with larger cushioned grips, ergonomic handles, and sizes are very visible or color-coded.



Rocker panel light switch

- Control levers or switches on equipment should have large color-coded/pictorial handles.
- Freestanding equipment controls should be located on the front of the machine and at least 18 inches off the ground and no more than 48 inches above the ground.
- Accessible sink area—usable sitting or standing—with a lever style faucet for clean up.
- Utilize floor markings for travel areas and work areas to keep parts, debris, or equipment from blocking these areas.
- Utilize floor markings at doorways to assist vision when pulling or backing in equipment to storage or service area.
- Use organizational techniques such as visual labeling and easy-open containers.

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About AgrAbility Based Fact Sheets

These fact sheets were developed to promote success in agriculture for Ohio's farmers and farm families coping with a disability or long-term health condition. AgrAbility offers information and referral materials such as this fact sheet, along with on-site assessment, technical assistance, and awareness in preventing secondary injuries. Fact sheets were developed with funding from NIFA, project number OHON0006.

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