

Clinical Law Program Review of Floor Plans and Drawings Universal Design Checklist

**Washington Court
Dubuque, Iowa**

**Prepared by the University of Iowa
Clinical Law Program
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**In Conjunction with
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Washington Court Universal Clinical Law Program Review of Drawings

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Review of Drawings and Floor Plans

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This checklist represents our review and analysis of the drawings and floor plans for the building, grounds and apartments at Washington Court. It contains our recommendations for enhancing the livability, accessibility, and adaptability of the Washington Court dwelling units and our suggestions regarding features and issues that also warrant consideration.

In performing our analysis, we referenced a multitude of regulations and guidelines, including the Uniform Federal Accessibility Standards (UFAS), the Code of Iowa, the International Building Code (IBC), the American National Standards Institute (ANSI) standards, the Fair Housing Act Accessibility Guidelines (FHAAG), the Rehabilitation Act, the Americans with Disabilities Act Accessibility Guidelines (ADAAG), and several universal design checklists. We also consulted knowledgeable and experienced individuals for helpful information on applying the regulations and guidelines as well as the merits of certain design features and appliances. This includes representatives from the Iowa Finance Authority (IFA), owners of universal design homes, participants at the Voices Summit in Bettendorf, Iowa, and members of accessibility and real estate development listservs.

The checklist proceeds room-by-room within the dwelling units to detail the recommended features, specifications, and considerations unique to each room. Additionally, the report addresses prominent and prevalent features of the dwelling units that warrant separate examination, such as doors and pre-wiring.

GENERAL AREAS:

Location of Apartments for People with Impaired Mobility, Vision or Hearing:

- The apartments designated for use by people with mobility, vision, hearing and other impairments (designated H/C on the drawings) should be dispersed throughout each floor to avoid isolating or segregating residents with disabilities.
 - Clustering the H/C apartments may promote an institutional feel and incorrectly lead people to believe there is a “disability wing.”
 - Consider the H/C apartments’ proximity to elevators, laundry rooms, areas of refuge or rescue assistance and public use or common spaces.
- Provide one apartment equipped for persons with vision impairments and one apartment equipped for persons with hearing impairments.

Signage:

- Way-finding, directional, parking and other signage (maps, evacuation plans, etc.) should be prominently displayed and easy to read and understand.
 - Signage in Braille format must be posted where required by law and should be considered for use throughout the facility.
 - Use pictograms, icons or symbols to supplement text that identifies laundry rooms, no-smoking areas, public phones and other public or common use spaces for people who have difficulty reading or have cognitive impairments.
 - Careful attention should be paid to aesthetics, illumination levels, design and use of color when creating and posting signage.

Parking, Passenger Drop-off and Loading Zones:

- Modify the parking in Lot 1 off Washington and East 17th streets and create and properly designate five additional spaces reserved for persons with disabilities next to the four existing reserved spaces. Lot 1 adjoins and leads to the accessible entrance for residential tenants. Lot 2 will serve residential and commercial tenants and people who visit or work at the medical and dental clinics or other first-floor establishments.
- Create and properly designate parking spaces reserved for persons with disabilities in Lot 2 off East 18th and the alleyway, which has 55 total stalls and no reserved parking spaces.
 - Lot 1: Reconfigure the van accessible space next to the nine-foot-wide access aisle so it is 11 feet wide (rather than nine).
 - Lot 1: Provide level landings that are flush with the access aisles or ensure a maximum slope of 2% in all directions for parking spaces and access aisles to enable people to get from the lot to the entrance (ramps should not protrude into the access aisle).
 - Lot 1: Create and designate five additional spaces reserved for persons with disabilities (or create five spaces that meet ADAAG dimensions and

re-stripe and designate these spaces when tenants who have parking placards move into the building).

- Lot 1: Consider designating additional spaces for people with special needs who do not qualify for parking placards (mothers-to-be, people who suffer injuries, employee or tenant of the month, etc.).
- Lots 1 and 2: Post and display proper signage for standard- and van-accessible spaces and access aisles.
- Lot 2: Install and designate four or five parking spaces reserved for persons with disabilities who are tenants, outpatients, visitors or staff.
- Provide an accessible route from Lot 2 to the entrances used by residential and commercial tenants.
- Consider installing a passenger drop-off or loading zone in or near Lot 2 and the alley for use by outpatients or visitors (provided sufficient space exists to comply with ADAAG and Iowa accessibility code standards).

Building Entrances:

- Install automatic or power-assist doors that open with a push-button, card swipe, or electronic-eye mechanism.
 - These doors benefit residents, visitors and patients who use wheelchairs, assistive devices or strollers, and furniture movers, delivery companies, health care providers and others who will enter and exit the building.
 - Electronic eye systems provide security and ease of entry; management can change security codes if tenants lose their cards or move elsewhere.
 - Operating switches and openers should be easy to identify, locate and reach.
- Provide ample lighting inside and outside of all entrances and facilities.
- Install a roof, canopy, or awning to protect the entrance from rain and snow and provide shelter for residents.
- Mailboxes inside the complex must be accessible.
 - Install mailboxes at varying heights so they can be reached from a seated position.
 - If keys are used, they should be oversized and easy to hold.
 - Provide signage in alternate formats for persons with vision and cognitive impairments.
- Avoid the use of latex-based products in all phases of construction (paints, sealants and other materials could pose a hazard to individuals who are allergic to latex).

Intercom System:

- Install an intercom system at each entrance (and in each apartment) to enable visitors to signal their arrival, communicate with residential and commercial tenants and obtain entry.
- Use a freestanding intercom system rather than one that is run through the residents' phone lines. Phone-based systems can be confusing, cannot be used

when people are using the telephone and do not take into account cellular and Internet phones.

- The intercom should emit audio *and* visual signals for use by people with vision and hearing impairments.
 - In apartments, the intercom system should use soft-light bulbs that can be dimmed to avoid startling residents.
 - In apartments, consider using an intercom system that could be connected to devices that control or turn off televisions, environmental controls, appliances and other technology for signaling.
 - Consider an intercom that has video capability for persons with hearing impairments (expensive).

Elevator Landing:

- Determine if the doors at the elevator landing will be left in the open or closed position or open automatically.
 - If closed at all times, consider installing one door, rather than using two doors (if permitted by the fire code) or consider leaving one door open (*Iowa Finance Authority*).

Areas of Refuge or Rescue Assistance:

- Provide areas of refuge or rescue assistance at stairway landings, elevator lobbies or other locations where people who are unable to use stairs may remain temporarily in safety to await further instructions or assistance during emergency evacuation. Comply with ADAAG/IBC requirements for placement, size, communication, signage, etc.

The Laundry Room:

- Install front-loading washers and dryers that have controls on the front of the machine. Mount the machines about 10 inches from the ground to reduce bending and kneeling and provide additional storage space underneath. Front-loading washers are difficult to open because they have seals to keep in the water; purchase a model that is easy to use.
- Provide an adjustable-height table with sufficient knee space that can be used for folding laundry, or provide a table with a counter that is 30 inches high or less.
- Move the clothes dryers to the wall across from the washing machines and place the table for sorting or folding laundry on the far wall between the washers and dryers (*Pettus*).
- Provide grab sticks or other devices people can use to open and close the doors and retrieve laundry from the machines.
- Provide wheeled carts for transporting laundry.
- Use dispensers and other machines that comply with ADAAG.

- Install intercoms and signalers people can use in emergencies to alert management, authorities, or other tenants.

Community Rooms:

- Consider building a physical fitness room on the third or fourth floor. In consultation with physical therapists and occupational therapist, outfit the room with equipment that is useable by persons with different functional abilities.
- Consider building a multi-use room on the third or fourth floor where people can meet, host social gatherings, show movies, watch television or play games.
- Consider building a garden or small greenhouse on the south side of the building where tenants can plant or enjoy flowers, vegetables, shrubs and trees. Install raised flower beds, an accessible path, a fountain, aromatic plants, etc.
- Install a family-use bathroom near the second floor community room.
 - (See the Bathroom Section for other recommendations).
 - Install a diaper-changing table in the family bathroom.
- Install an intercom that has large buttons and a large digital display and connects to the on-site manager or other emergency contact.
- The kitchen should have the following:
 - A side-by-side refrigerator (See the Kitchen Section for other recommendations).
 - Locks on the stove and cooktop to prevent injury and unauthorized use.
 - Lightweight fire extinguishers.
- Ensure that the skylights meet fire code standards (*IFA*).
- Install phone, Internet and cable connections.
- Consider creating a work area and computer station.

THE APARTMENTS:

Doorway:

- Manual doors should have lever-type handles, a maximum opening force of 5 pounds and a 3-second sweep for easy operation (*IFA*).
- Install security peepholes with wide-angle lenses; mount them at varying heights to accommodate children and adults (whether or not they use wheelchairs).
- Use keyless entry systems (electronic eye, card swipe, etc), or a keyed system with locks that are backlit and easy to open by people with limited dexterity or manipulation.
- Pre-wire the door for future installation of a power-assist or automatic door as done in Iowa City's *B Street Universal Design Home (B Street Home)*.
- Mount a bell or signal system that emits an audio and visual signal and consider mounting a door-knocker.
- Post evacuation and emergency plans on the inside of the apartment door (as hotels do). Laminate or protect the plans for durability and provide them in

alternate formats such as large print or Braille. Or, provide the plans to tenants for safekeeping.

Lighting:

- Provide ample lighting inside and outside of the apartment, beneath cabinets, in closets and in other spaces.
 - Compact fluorescent lights are efficient, inexpensive to operate and fit in conventional incandescent sockets.
 - Rocker-style switches are easy to use; backlit switches are easy to find in the dark and help people with vision impairments locate switches day or night.
 - Mount the rocker-style, backlit switches from 40 to 44 inches from the finished floor.
 - Provide more than one switch for lights in hallways and rooms.
 - Ensure that light bulbs can be changed by people who use wheelchairs or have limited reach or manual dexterity, or provide maintenance service to tenants who have functional limitations.

Entryway Closet and Hallways:

- Mount “C-shaped” handles, rather than doorknobs, on top-tracked, bi-fold closet doors.
 - Provide lighting in the closet.
 - Install an adjustable-height clothes rod or mount clothes rod 36 to 54 inches from the finished floor.
 - Alternatively, consider installing top-tracked accordion style doors.
- Mount electrical outlets next to the closet 18 to 20 inches from the floor for people to use to recharge power wheelchair batteries, plug in lamps, etc.
- Consider reinforcing the walls next to the closet to accept vertical or horizontal grab bars or shelves where people can place packages, belongings and assistive technology.
- Protect walls and surfaces from wear-and-tear and damage with Plexiglas or plastic protective corner strips, trim guards and kick plates.
- Mount a programmable thermostat controller in the hallway near the kitchen or living room about 42 inches from the floor.
 - The thermostat should be backlit with easy-to-see and read, large-size digital numbers.
 - The thermostat should have buttons or controls that can be used by people with limited dexterity.

The Living Room:

- Provide several electrical outlets in the room for televisions, sound systems, lamps, assistive devices and technology used by people with disabilities.

- Mount the receptacles from 18 to 20 inches, but no lower than 15 inches, from the floor.
- Install slide plates that prevent children from sticking their fingers into the outlets; child-proofing plugs are difficult for many people to use.
- Furnish overhead or other lighting systems that are easy for people to use and maintain without the help of others.
 - Place the backlit, rocker-style switches in several places in the room at between 40 and 44 inches from the floor.
- Install telephone, cable and high-speed Internet connections at several places in the room.
 - Place the jacks or connectors from 18 to 20 inches from the floor to allow people to navigate around the room and furniture.
- Consider installing a pocket door that separates the bedroom/bathroom from the living room/hallway.

Windows and Window Treatments:

- Install energy-efficient windows and screens that can be opened and closed (or raised or lowered) by adults and children who have limited strength, reach, or dexterity.
 - The windows and screens should be easy to open and close manually, or be operable using a remote-control automatic opener/closer.
 - Pre-wire the windows to accept automatic operating systems (see the Andersen window system in the *B Street Home* that could be operated using a hand crank or remote).
- Select blinds, curtains or other window treatments that can be opened or closed or removed for cleaning by persons with various physical limitations.
 - Consider purchasing manual, electric or automatic window treatments.
 - Consider pre-wiring the windows for automatic/remote openers.

The Bedroom:

- Consider an alternative design for the bedroom in the HC 1BR apartment. Reconfigure the layout to enlarge the bedroom and make better use of space. (*Jordan Pettus, Corridor Design*).
- Consider an alternative design in the HC 1BR apartment. Reduce the size of the room that abuts the hallway or eliminate the room altogether (determine whether the room is to be used as an office or utility closet or for infrastructure or other purposes (*Pettus*)).

Bedroom Closet:

- The bedroom closet door swings into the bedroom, which may limit the tenant's usable space and maneuvering room.

- Considering replacing the swinging door with a pocket door that has hardware that is easy to use and stops the door from receding too far into the wall. Or, install a double door.
- Install shelves, dresser drawers and/or clothes rods that can be adjusted or moved by tenants to minimize the need for furniture and maximize space.
- Mount some of the shelves no higher than 54 inches from the floor and install at least one clothes rod as low as 36 inches from the ground (*B Street Home*).
- Install lights in the closet and switches inside and outside the closet.

Bedroom Walls:

- Consider reinforcing the bedroom walls nearest to the bed and/or the door leading to the bathroom for future installation of grab bars.
- Consider reinforcing the bedroom ceiling, if necessary, to support installation of a lift or other device for individuals with severe and multiple impairments.

Bedroom Outlets, Lighting, Windows etc.:

- Equip the bedroom with several outlets to accommodate the tenants' technology needs, provide telephone, cable and Internet connections, provide ample lighting and switches and consider installing a second thermostat control.
 - Use switched outlets that allow people to turn on or off equipment plugged in to one of the receptacles.
- The 2BR HC apartment has a bedroom closet with bi-fold doors. Install hardware that is easy to open and use; install a door that has the tracks at the top of the door.

The Bathroom:

- Consider an alternative design. Build mirror image bathrooms in the HC apartments to accommodate persons who have greater strength or functional ability from the left or right side of the body. For example, if one HC apartment has a sink and bathtub on the left hand side upon entrance, another HC apartment should have the sink and bathtub on the right hand side upon entrance (*Pettus*).
- In the 2BR HC apartment, rotate the bathtub or place the controls on the wall closest to the center of the room (which could be the plumbing wall). This design strategy should allow people to transfer and use the controls whether they are left- or right-side dominant.

Bathroom Wall Reinforcement:

- Reinforce all the walls to a height of 8 feet for installation of grab bars, devices or shelving used by the different tenants who will live in the apartment over the years.
 - Blocking is especially important between the toilet and bathtub to allow for installation of a fold-down seat that people can use to transfer from a wheelchair to the bathtub.

Toilet:

- Purchase high quality, heavy-duty toilets and seats that provide extra support and durability -- standard toilets are often too small or flimsy for use by people with or without disabilities.

Bathroom Sink and Mirror:

- Install a sink with a vanity cabinet with removable or recessed doors to provide greater access and a more aesthetically pleasing design.
 - Use a faucet with a single lever handle.
 - Consider installing a fold-down grab bar on the wall next to the sink.
- Replace the tilt mirror with a mirrored medicine cabinet (or a mirror) mounted on the wall behind the sink.
 - Tilt mirrors require constant adjustment when used by more than one person; sometimes they provide distorted images.
 - Install the mirror so the bottom edge is no higher than 36 inches.
 - Consider mounting the medicine cabinet behind the sink or on the wall to the right of the sink.
- Install a full-length mirror on the wall next to the bathroom door for all residents and guests to use.
- Provide outlets and consider placing phone connections here.

Bathtub and Shower:

- Install a roll-in shower in at least one IBR HC apartment. Prefabricated units are not recommended because they leak, their grab bars often are not durable, they do not permit installation of additional grab bars, and drainage is problematic. Design and install a roll-in shower that has, at a minimum, the following features:
 - A handheld showerhead that can be manually adjusted and has a cable long enough to reach all positions in the shower.
 - A showerhead and controls that are located on the sidewall in the middle of the shower unit—i.e., in the middle of the wall perpendicular to the head and foot of the shower unit (*B Street Home*).
 - A push-button or easily operable lever control for water flow.
 - A floor recessed to allow for drainage (*New Hampshire Governor's Commission on Disability*).

- A slightly raised threshold with color-contrast edging to reduce leakage and promote safety, but with a smooth beveled edge to allow for easy wheelchair access.
- In bathtub/shower units, consider installing a two-foot wide transfer area on the wall opposite the showerhead to ensure the greatest and safest means of access. Or, make certain the rim and edge of the tub is wide enough to allow an adult to transfer from a chair or device to the tub or a seat in the tub (*Pettus*).
 - Installing the transfer area will eliminate the wire shelving and require bumping out a wall or redesigning the bathroom and adjoining rooms.
- Anti-scald devices should be used at the shower, sink and bathtub faucets to reduce the risk of burns (even if devices are installed on the hot water heater).
- Consider voice-activated water flow controls in the shower or bath. (*Voices Summit*).

Bathroom Outlets, Lighting, Communications, etc.:

- Install switches for lights and ventilation fans in a dry location near the doorway.
- Install an overhead heat lamp (*IFA*).
- Provide several grounded outlets that can be reached and reset by person in a seated position.
 - Consider automatic shut-off outlets near the sink.
- Consider installing a phone jack in a safe and dry location for a telephone that can be used in emergencies.

The Kitchen:

- Consider alternative designs in the kitchen to provide additional, continuous countertop space and more usable countertops, workstations and storage areas.
 - Reverse the positions of the refrigerator and the adjacent cabinet, provided there is sufficient clear space to open the freezer door 90 degrees. Next to the refrigerator:
 - Create a workstation that has an adjustable-height counter or a countertop 28 to 30 inches high, with a cabinet below that has a finished interior, recessed or removable doors and removable shelves.
 - Install outlets, a phone jack and lights above the countertop.
 - Consider building a cabinet or peninsula that extends into the living room to provide additional counter space or serve as table, desk, or workstation.
 - Ensure that counters have rounded edges.
 - Use color-contrast edging on the counters to promote visibility and spatial awareness (*IFA*).
 - Reverse the position of the oven, the cooktop and the cabinet with countertop to provide a continuous countertop work surface (*Pettus*).
- Vary the height of countertops.

- Install pull-out workboards near the stove, refrigerator and sink.
- Consider using portable robots for lifting or moving objects in the kitchen or other areas of the home (*IFA*).

Kitchen Cabinets:

- Install cabinets with hardware that is easy to open using a closed fist, such as u-shaped handles (and consider using European hinges that allow doors to open and lay flat against the cabinet, but at additional expense).
- Install under-cabinet lighting.
- Use Lazy Susans in corner cabinets.
- Install pull-out shelves in other cabinets.
- Under the sink in HC apartments, install cabinets with removable or recessed doors.
- Under the sink in non-HC apartments install cabinets with recessed or removable doors and removable shelves. These cabinets should have a finished interior with flooring laid to the wall.
- Consider placing the upper kitchen cabinets 14 to 16 inches above the counter tops.
- Consider installing an AD-AS adjustable height cabinet in one HC apartment.
<http://www.ad-as.com/kb/>
- Install a pull-out cabinet next to the stove (in the cabinet where the vent hood and other controls are located) to house a garbage can.

Stove/Cooktop:

- The stove/cooktop should have large and easy-to-use temperature controls mounted at the front and burners that are distinguished using color contrast.
- Consider installing a stove/cooktop that has an automatic shut-off mechanism.

Oven:

- Consider purchasing ovens with doors that open from the right and left sides to promote flexibility in access and usability.

Dishwasher:

- Mount dishwashers 10 inches above the floor instead of 24 inches (as the plans now indicate) (*B Street Home*).
- Build or install a wooden rack above the dishwasher to store dinner-sized plates (*B Street Home*).

Kitchen Sink:

- Install an AD-AS adjustable height sink in at least one HC apartment.
<http://www.ad-as.com/kb/> (*B Street Home*).

- Consider pre-wiring other apartments for future installation of an AD-AS adjustable height sink. <http://www.ad-as.com/kb/> (*Belman Residence in Iowa City*).
- Provide counter space or a work surface on each side of the sink.
- Install an aerated sink with a faucet wand.
- Install removable or recessed doors on the cabinets under the sinks in HC and non-HC apartments.
- Consider installing quick-change cabinets that are being developed by ISU and a Waterloo cabinet company.
- Ensure that garbage disposal switch is spring-loaded so it must be held in the “on” position to operate. (*IFA*).

Fire Extinguisher:

- Provide a lightweight fire extinguisher that is easy for people with limited dexterity or manipulation to operate. Mount the extinguisher in the kitchen at a height that can be reached from a seated position (*IFA*).