

# Hand Hygiene Sink Selection and Installation

## Best practice recommendations

### Principles

- Appropriate hand hygiene sink selection and installation reduces the risk of splash and spray of contaminated water during hand hygiene.
- Outbreaks of infectious organisms and contamination of supplies, equipment, work surfaces, healthcare provider hands and clothing have been linked to inappropriate design and installation of hand hygiene sinks.

### Purpose

This document describes wall mounted hand hygiene sink requirements. Additional considerations for scrub sink selection can be found in the CSA Z317.1:21 *Special requirements for plumbing installations in health care facilities* clause 8.4.4.

#### Notes:

- Mental health and brain injury settings may require additional considerations like anti-ligature fixtures. See CSA Z8000 *Canadian health care facilities* for more details.
- Non-clinical sinks like bathroom sinks should be designed using the same fundamental characteristics, e.g., sink shape prevents splashing, water is not discharged directly onto the drain, etc. Further information on non-clinical sink design can be found in the CSA Z317.1:21 clauses 8.1.4 “lavatory faucets” and 8.4 “sinks and lavatories” and in the CSA Z8000:24 Table 13.1 #14.
- Barrier-free sinks are programmed **in addition to** wall mounted hand hygiene sinks used by staff based on functional planning (CSA Z8000-18 Table 13.1 #14 Accessible sinks a)). See the Alberta Safety Codes Council – Accessibility design guide 2024 for detailed information about barrier-free handwashing stations.

### Application

These recommendations should be followed by AHS, Covenant Health, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary) who are responsible for purchasing new sinks and faucets for hand hygiene sinks. Consult Infection Prevention and Control (IPC) when evaluating and purchasing sinks and faucets. Please refer to the Hand Hygiene Section in the [AHS IPC Health Care Facility Design Recommendations](#) for a listing of healthcare areas where hand hygiene sinks are required.

## Language

**Hand hygiene sink (HHS):** A wall mounted sink and faucet that is designed for effective hand hygiene that restricts splashes and aerosolization of water. It is dedicated exclusively for hand hygiene and is not used for any other purpose, e.g., disposal of beverages and nutrition fluids, human waste and IV fluids, etc. (CSA Z8000:24 7.5.12.1.2). Eyewash stations cannot be mounted over hand hygiene sinks (CSA Z8000:24 7.6.2.4, Table 13.1 #14 c] xi)).

**Handwashing station:** The combination of a hand hygiene sink, soap dispenser, paper towel dispenser and waste receptacle (CSA Z8000:24 Table 13.1 #14 hand hygiene sinks, CSA Z317.1:21 8.4.2.2). All components of a handwashing station (basin, faucet, paper towel dispenser, soap dispenser, waste receptacle) withstand frequent cleaning and are compatible with hospital grade low-level disinfectants.

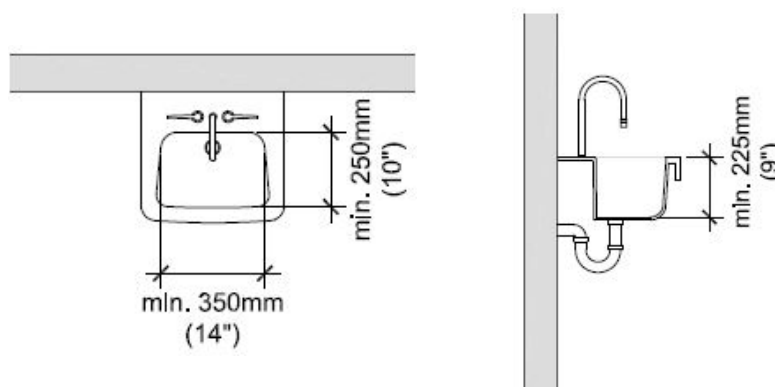
## HHS selection criteria

### 1. HHS basins

#### 1.1 Basin dimensions (CSA Z317.1:21 8.4.2.4.1; CSA Z8000:24 Table 13.1 #14):

- At least 225 mm (9 in) from the deepest point to the rim.
- The interior basin size is at least 350 by 250 mm (14 x 10 in).
- Note: For oval designs and designs with rounded corners, these distances should be measured at the widest point.
- HHS sink basins are large enough to prevent recontamination of hands by splash back or contact with the sink basin walls and fixtures during hand hygiene.
- Front to back sink dimension allows easy reach to wrist blade controls (when used) and soap dispenser.

**Figure 1 – Basin dimensions**



## 1.2 HHS basin construction (CSA Z317.1:21 8.4.1.1, 8.4.2.4.2)

- Sink basin material:
  - Solid and non-porous materials, e.g., porcelain, enamel, vitreous china, or 18 gauge or thicker stainless steel. Granite and marble are not appropriate.
  - Scratch resistant
  - Easily cleaned and disinfected
  - Resistant to damage and compatible with disinfectant products
- Inside contour of basin should allow for easy cleaning and maintenance.
- Basin rims are narrow and sloped to the inside of the basin. This prevents the placement of objects on the rim and pooling of water.
- HHS do not have overflows.

**Note:** Overflows are difficult to clean and serve as reservoirs for infectious organisms.

- Cup and bar sinks are not acceptable.
- Sink drains are offset from faucet water flow. When water falls from the faucet it does not flow directly into drain since this causes splashing.
- Sink drains are not able to take a plug or non-removable drain cover.
- Open grid strainers are acceptable.

**Note:** Fine mesh strainers are not acceptable since they are easily contaminated by infectious organisms.

## 2. Faucets

### 2.1 Faucet selection criteria (CSA Z317.1:21 8.4.2.4.2, 8.1.4):

- Faucets are stationary and do not swivel.
- Faucet mouth does not pool water.
- Faucets provide non-aerated laminar flow.
- Faucets do not have strainers, aerators, modulators, or rose sprays because these can become contaminated by infectious organisms (CSA Z8000:24 Table 13.1 #14 c] iv] and v]).

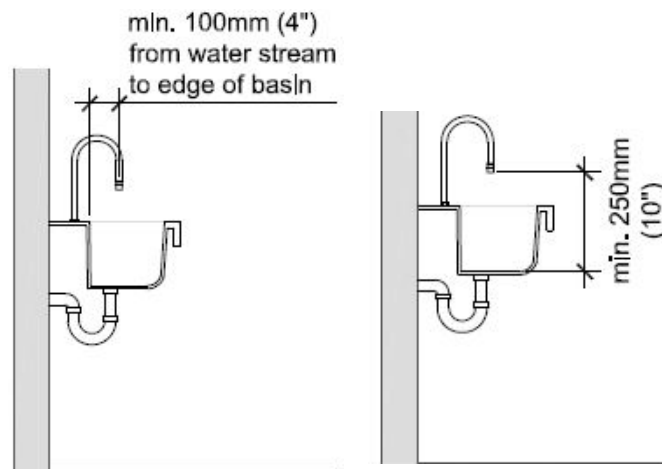
### 2.2 Faucet clearance:

To allow enough room for two adult hands and reduce pooling of water on the backsplash, appropriate clearance between the discharge point of the faucet and interior of the sink basin is required.

- A minimum of 100 mm (4 in) clearance between the flow of water and the inside wall of the basin is recommended (FGI 2022 A2.1-8.4.3.2 [1] c).

**Note:** When selecting a gooseneck faucet, a radius of 100 mm (4 in) is not sufficient. E.g., when a gooseneck faucet with a 100 mm (4 in) radius is set back 245 mm (1 in) from the edge of the basin during installation, there is only 760 mm (3 in) between the basin and flow of water.

- The distance between the water discharge point of the faucet and the bottom of the basin is at least 250 mm (10 in) (FGI 2022 2.1-8.4.3.2 [5]).

**Figure 2 – Faucet clearance**

### 2.3 Faucet controls:

Faucet controls have hands-free operation, e.g., automatic faucets, foot pedal, wrist blade controls, etc. (CSA Z317.1:21 8.4.2.6):

- Wrist blade controls
  - Minimum blade handle length of 150 mm (6 in) long (CSA Z8000:24 Table 13.1 #14).
  - When in the open position, blade handles do not interfere with handwashing.
- Automatic faucets (CSA Z317.1:21 8.1.8, 8.1.9, 8.4.2.6.2)
  - Automatic faucets include a means to regulate water temperature.  
**Note:** Temperature extremes can be a safety hazard, impact hand hygiene practices and skin integrity.
  - Sensor activation does not contaminate the hands or faucet discharge point.
  - Sensor activation is not triggered by body position beyond the basin.
  - Hand position during use is level with sink rim or below to minimize splashing.
  - Automatic sensor can operate during power failures.
  - Installation should include a means for providing “always-on” operation for use during plumbing flushing plans and hyperchlorination.

**Note:** Automatic faucets can be a simple and convenient solution for hands-free hand hygiene; however, contaminated automatic faucets have been linked to patient infections (CSA Z317.1:21 8.1.8.2). These faucets may also be at higher risk of biofilm formation (FGI 2022 A2.1-8.4.3.2 [8][b]). When selecting electronic faucets, complete an infection control risk assessment, consider the patient care area, and assess the reliability and sensitivity of the electronic sensor prior to purchasing.

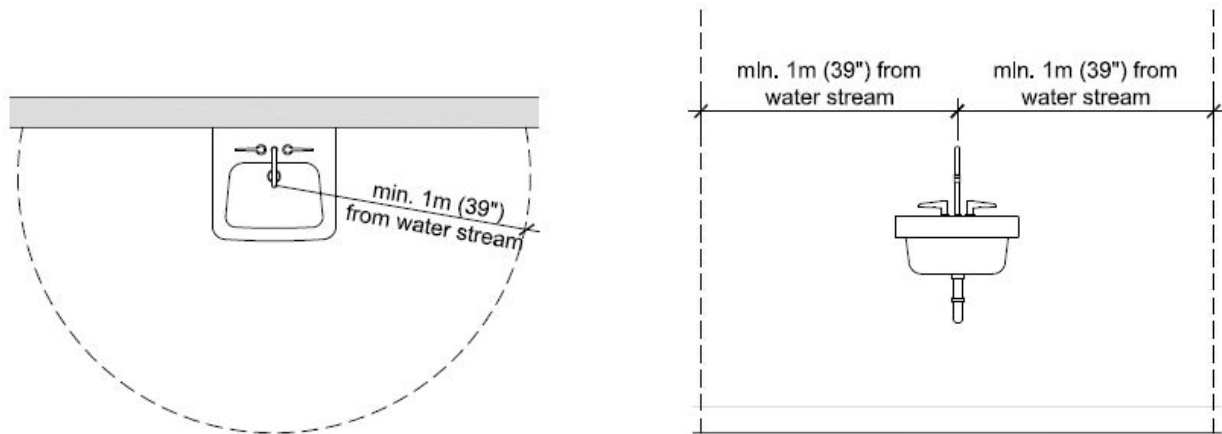
## HHS Installation

### 3. Sinks (CSA Z317.1:21 8.4.2.2):

- Wall mounted, not inserted into a counter.
- Anchored to prevent separation from the wall (FGI 2022 2.1-8.4.3.2 [7]). Residents and patients often lean on wall mounted sink basins for support.
- Installed at least 865 mm (34 in) above the floor.
- Due to the risk of splash, sinks need to be located at least 1 metre (39 in) away from patients, clean supplies, work surfaces, mobile equipment, curtains, and sources of extrinsic contamination like eyewash stations, clinical rim flushing sinks or hoppers.

**Note:** The 1 metre distance is measured from the faucet discharge point in all directions.

**Figure 3 – One metre splash zone**



If the existing footprint does not allow a 1 metre (39 in) distance, install a splash barrier. A mock-up and post-occupancy evaluation is recommended to ensure the splash barrier is effective.

### 4. Backsplashes and side splashes (CSA Z317.1:21 8.4.2.5, 8.4.1.1):

- Backsplashes that protect the wall behind sinks and side splashes that protect vertical surfaces within 1000 mm (39.4 in) of the sink basin edge are required. They reduce the risk of microbial growth and facilitate cleaning of surfaces above and adjacent to HHS by being:
  - Water impermeable
  - Compatible with AHS cleaning and disinfection products
  - Seam free or integral with the sink and
  - Resistant to damage.
- Backsplashes edges are sealed, waterproof, and extend:
  - From coved base to at least 2100 mm (82.7 in) above finished floor (CSA Z8000:24 Table 13.1 #14 f] iii])
  - At least 300 mm (12 in) out from both sides of the sink basin edges
  - Under the paper towel and soap dispensers.

- Side splash edges are sealed, waterproof, and extend:
    - From coved base to at least 2100 mm (82.7 in) above finished floor (CSA Z8000:24 Table 13.1 #14 f) iii)].
5. Water pressure and drainage (CSA Z317.1:21 8.4.1.1):
- A minimum flow rate of 5.7 L/min (1.5 US gal/min) is provided through internal means of the fixture (CSA Z317.1:21 8.1.4.1).
  - Water pressure is adjusted to reduce the force of water discharge at maximum flow (FGI 2022 A2.1-8.4.3.1 [1] [b]).
  - Sink/drain connection gaskets are plastic, neoprene, or a material that discourages biofilm growth. Natural rubber gaskets are not used.
  - P-traps and cleanout materials withstand daily disinfection, e.g., 20 gauge stainless steel, cast brass or 17 gauge tubular brass that is chrome plated where exposed.
  - Traps are 40 mm (1.5 in) in diameter (CSA Z8000:24 Table 13.1 #14).
- Note:** Trap size affects drainage and water flow times.
- Drainage flow rate removes soap residue and prevents pooling of water in the sink basin.
- Note:** When sink drainage rates are slower than faucet inflow, the resulting pooling of water in the sink basin can increase the risk for splash and re-contamination of healthcare provider hands.

## Waste receptacles, soap and paper towel dispensers

6. Waste receptacle (CSA Z8000:24 Table 13.1 #14)
- Place close to the HHS.
  - Made of corrosion free material with a wide mouth design.
7. Soap dispensers (CSA Z8000:24 Table 13.1 #14 g))
- Use single-use bottles or cartridges that cannot be topped up or refilled.
  - Are physically separate from lotion and alcohol-based hand rub (ABHR) dispensers to avoid confusion of products.
8. Paper towel dispensers (CSA Z8000:24 Table 13.1 #14)
- Provide single-use paper towels using a “no touch” design, i.e., the towel is only touched when dispensed.
- Note:** Air hand dryers are not appropriate.
9. Mounting soap and paper towel dispensers (CSA Z8000:24 Table 13.1 #14)
- Refer to AHS Insite>Home>Infection Prevention & Control>IPC Healthcare Facility Design & Construction>Mounting Heights for Hand Hygiene Products and Sharps for mounting heights.
  - Mount to provide unobstructed access within easy reach.
  - Minimize splashes or drips onto walls and floors and splash-up onto the dispenser.

References

- 1. CSA Z8000:24 Canadian Health Care Facilities.
- 2. CSA Z317.1:21 Special Requirements for Plumbing Installations in Health Care Facilities.
- 3. The Facility Guideline Institute. Guidelines for Design and Construction of Health Care Facilities, 2022 edition.
- 4. AHS Infection Prevention and Control - Health Care Facility Design Requirements, October 2021.
- 5. AHS General Ergonomic Best Practices - Mounting Heights for Hand Hygiene Products and Sharps.
- 6. AB Safety Codes Council – Accessibility Design Guide 2024, October 2024.

## Appendix A - Summary of key requirements for basins and faucets

	Specifications		
	Basin	Metric	Imperial
<input type="checkbox"/>	Minimum basin dimensions	350 x 250 mm	14 x 10 in
<input type="checkbox"/>	Minimum basin depth	225 mm	9 in
<input type="checkbox"/>	Wall mounted, not set into a counter.		
<input type="checkbox"/>	Solid, non-porous material that is resistant to damage and scratching		
<input type="checkbox"/>	Offset drain from water flow		
<input type="checkbox"/>	Sink basin rim is minimal and sloped inside so no objects can rest on it		
<input type="checkbox"/>	Shaped to prevent pooling of water		
<input type="checkbox"/>	No overflow or fine mesh strainers and is not able to take a plug		
<input type="checkbox"/>	Trap material withstands daily disinfection; 40 mm (1.5 in) in diameter		
<input type="checkbox"/>	Plastic or neoprene gaskets (not rubber) at sink/drain connection		
	Faucet	Metric	Imperial
<input type="checkbox"/>	Minimum discharge distance to bottom of sink basin	250 mm	10 in
<input type="checkbox"/>	Minimum distance between interior basin wall & water stream	100 mm	4 in
<input type="checkbox"/>	Faucets must be stationary and cannot swivel		
<input type="checkbox"/>	Faucets provide splash free laminar flow		
<input type="checkbox"/>	Faucets do not have aerators, rose sprays, etc.		
	Faucet Controls	Metric	Imperial
<input type="checkbox"/>	Minimum wrist blade handle length (when used) Handles do not interfere with handwashing when in the open position.	150 mm	6 in
<input type="checkbox"/>	Provide hands free operation and a means to control water temperature		
<input type="checkbox"/>	When automatic faucets are used – the automatic faucet does not contaminate hands or faucet discharge point and is not triggered by body position beyond the basin		
<input type="checkbox"/>	When automatic faucets are used – the automatic faucet can operate during a power failure and should have a means to provide “always-on” operation		



Version history

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Version V6		



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