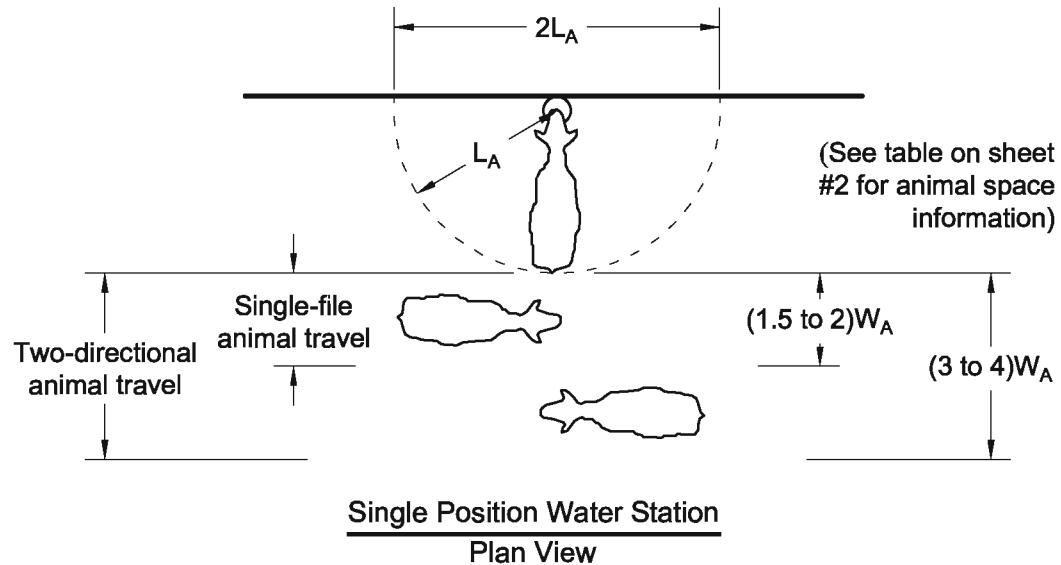


Double Position Water Station
Plan View

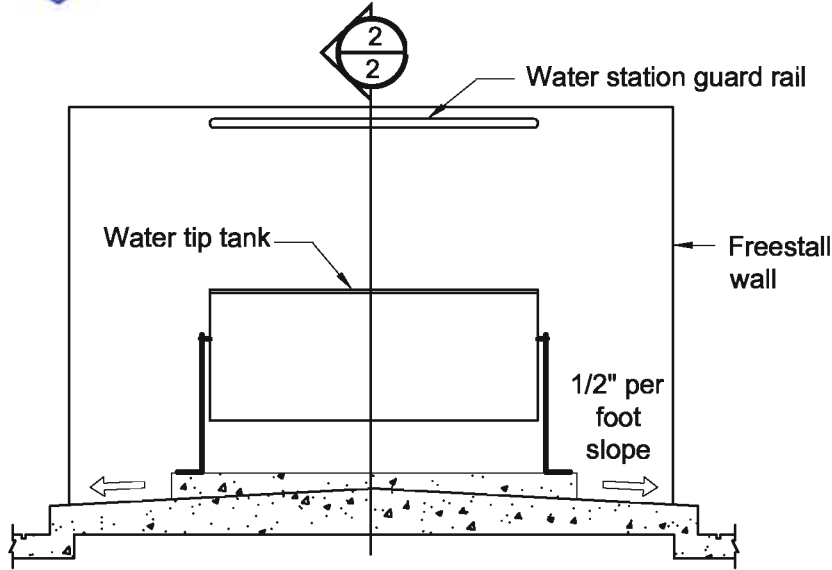
Water Trough
Plan View



Single Position Water Station
Plan View

Notes :

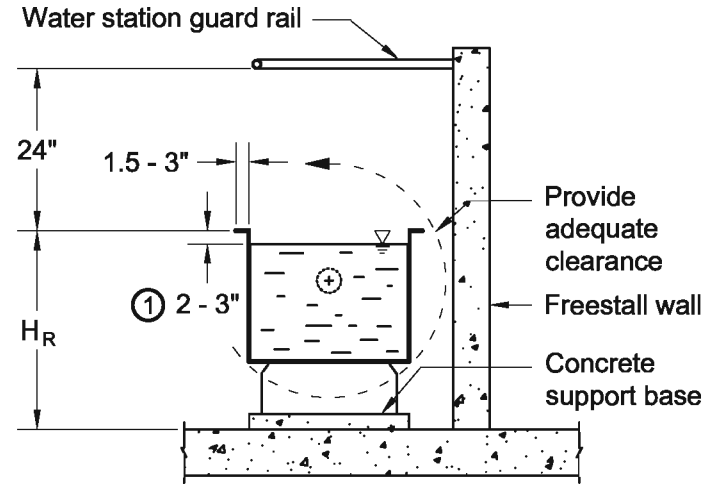
- Provide one water bowl or W_A length of water trough for every 25 - 30 animals.
- Provide minimum 3" water depth at animal drinking location
- Provide minimum 3 - 5 gallons per minute water supply delivery to each water location.
- Supply each water location with a separate supply pipe (1" minimum) and shut-off valve.
- Install water meter to allow monitoring of intake for each production group.
- Allow easy quick drainage for cleaning of water vessel.
- Clean water vessel daily.
- Reference: The Design of Dairy Cow Housing CIGR Section II, Working Group Cattle Housing, August 1994.



Metal Tip-Tank 2
 Front View 1

Note :

- ① Increasing the distance between the lip and water level can discourage birds from perching to drink. Be sure animals can still drink conveniently.

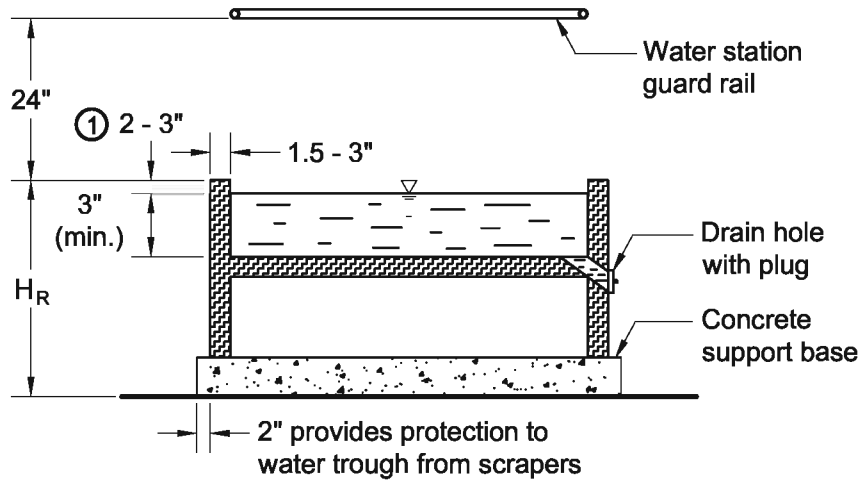


Metal Tip-Tank 2
 Cross Section View 2

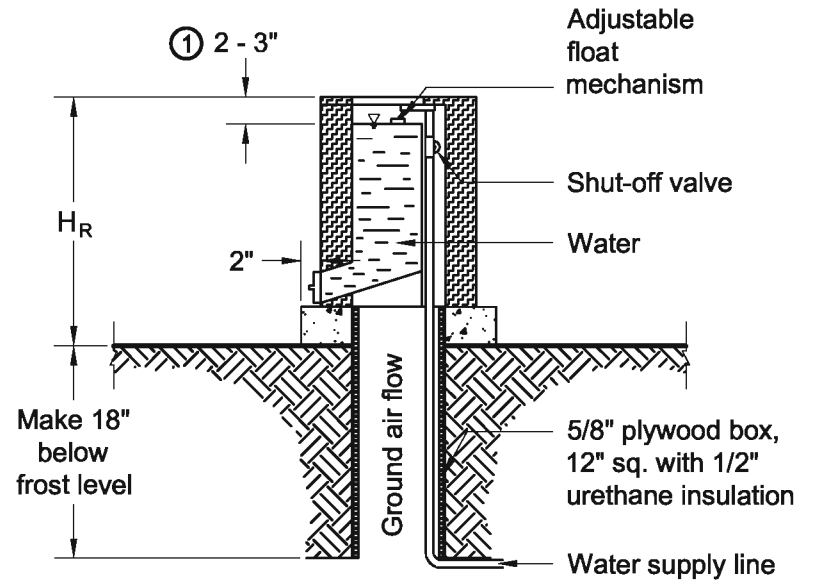
Suggested water source access dimensions for dairy calves and heifers

Weight (lbs)	Vessel rim height (H _R) (in)	Width of minimum standing space per animal (W _A) (in)	Length of minimum standing space per animal (L _A) (in)
Weaned calves	18 - 20	13	48
300 - 500	22 - 24	15	48
500 - 700	25 - 27	17	54
700 - 900	27 - 29	19	66
900 - 1100	28 - 30	22	72
1100 - 1300	30 - 32	24	84

**WATER STATIONS
 FOR
 DAIRY HEIFERS**
 Graves, Tyson, McFarland, Wilson
 Date: 02/27/07 Sheet #2 of 4



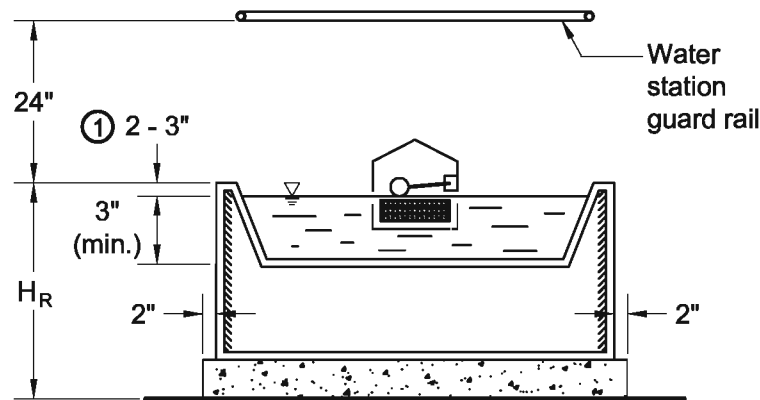
Concrete or Polyethylene Water Trough 3
 Cross Section View 1



"Energy Free" Insulated Water Station 4
 Cross Section View 1

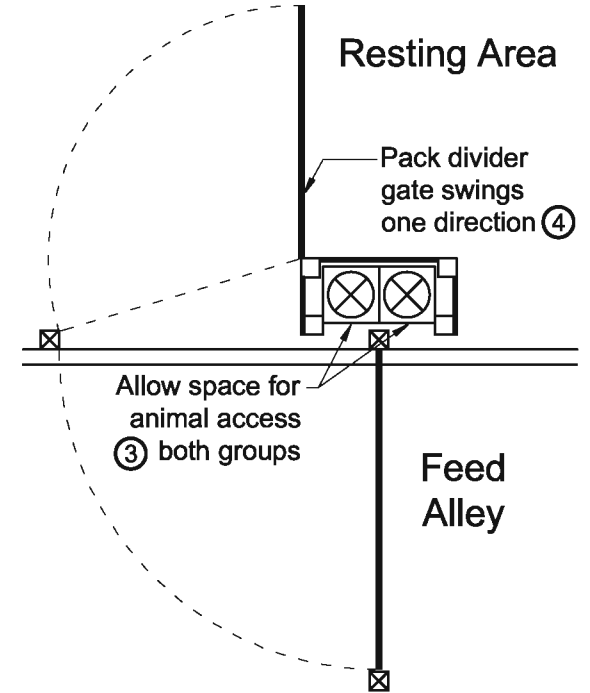
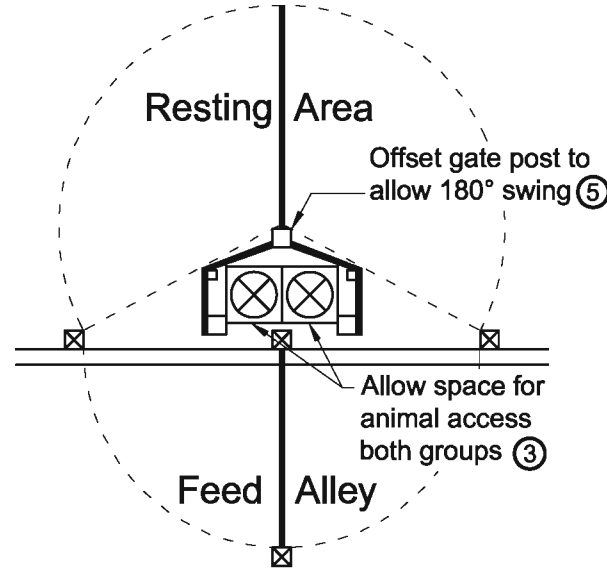
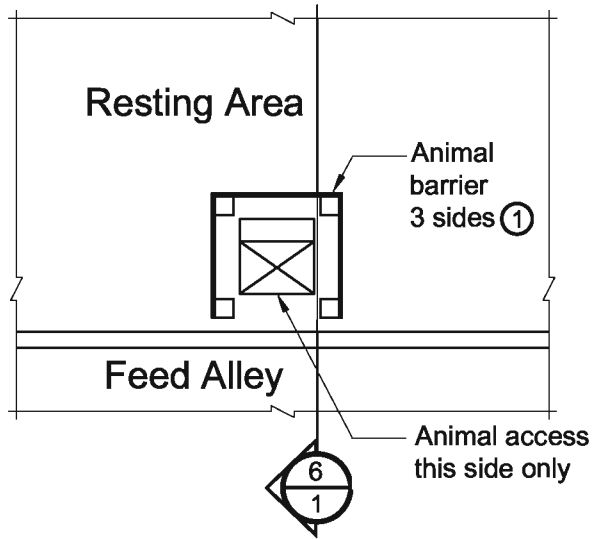
Note :

① Increasing the distance between the lip and water level can discourage birds from perching to drink. Be sure animals can still drink conveniently.

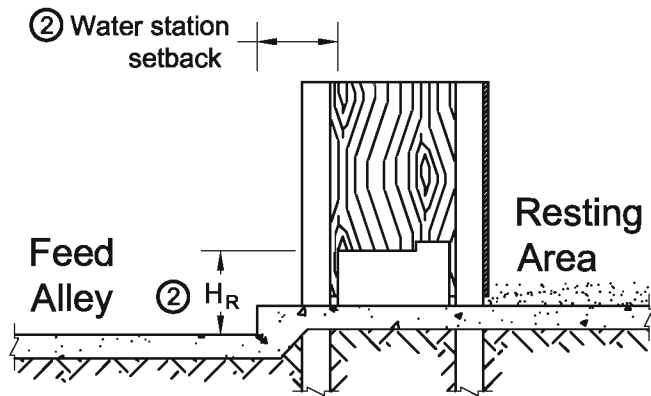


Two Position Heated Water Station 5
 Cross Section View 1

**WATER STATIONS
 FOR
 DAIRY HEIFERS**
 Graves, Tyson, McFarland, Wilson
 Date: 02/27/07
 Sheet #3 of 4



Water Stations with Barrier
Plan View



Water Station with Barrier
Cross Section View

Notes :

- ① Water stations in bedded pack and weaning calf shelters are placed at the edge of the resting area. Plywood, sheet metal, mesh or close rail fences are placed on three sides to allow access from the scrape alley only. This aids in maintaining clean animals, a clean resting space and reduces bedding usage.
- ② The height of the water vessel rim and set back from the feed alley must be coordinated to allow the smallest animal in the pen convenient access to water. As set back increases H_R must decrease.
- ③ When water vessels are shared between two groups the length of the unit and height and set back must accommodate animal access from both sides of the divider gate and gate post.
- ④ Pack divider gates that only need to swing in one direction can be mounted on a corner post of the barrier assembly.
- ⑤ To allow pack divider gate to swing 180° an additional post is placed to allow the gate to clear both corner posts.