1 General Issues

1.1 Visible parts of brass fixtures and accessories must be heavily chrome plated.

1.2 Provide loose key stops at all plumbing fixtures.

1.2.1 Key Stops and Stop Cocks may not be compression fit design

1.2.2 Key stops must be ‘heavy duty’ with ceramic cartridges.

2 Utility Room Fixtures

2.1 Precast service sinks should be floor mounted with hose, hose bracket, mop hanger, and pail hook double supply spout set at 36” above rim with SS wall protectors.

2.2 Faucets should have integral check valves and vacuum breaker.

3 Floor Drains and Clean-Outs

3.1 Floor drains in concrete slabs to have floor level trap clean-out large enough to allow the line to be “snaked”.

3.2 Provide floor drains in all mechanical rooms, restrooms and in the vicinity of safety showers.

Note: Floor drains near safety showers allow the shower to be tested and operated without the resultant water damage.

3.3 Clean-outs on buried drains shall extend through and be installed flush with the floor.

3.4 Clean-outs on overhead drains shall extend through and be installed flush with the floor above.

3.5 Concealed clean-outs shall be provided with an access panel or extend through the wall with a chrome plated cover installed flush with the wall.

4 Hose Bibs

4.1 Interior hose bibs shall have an integral vacuum breaker.

4.2 Exterior hose bibs shall be “freeze proof” with drain down to the exterior of the building and shall have an integral vacuum breaker.

5 Grease Traps

5.1 Grease traps should be located at point of use (under the sink).

Note: Point of use traps are less expensive and easier to maintain than having a single large trap for the whole building.

6 Steam Water Heaters

6.1 Steam water heaters will be specifically designed for potable water heating. The heater shell should be capable of being disassembled and the heating section removed without disturbing the water or electric lines.

6.2 Water heater will be designed to sub-cool the condensate prior to discharge.

Note: Shell and tube water heaters work well but when the tube bundle fails there is a significant delay in procuring and installing the replacement. In addition shell and tube heaters allow for hot condensate that, when close to the condensate pump results in cavitation.

7 Restroom Fixtures

7.1 Restroom should have a floor drain. The floor should not be sloped to the floor drain.

7.2 Flush valves are to be piston style mounted 12” above the fixture rim. Care should be taken to install appropriate water hammer arrestors as piston flush valves are more likely to hammer than diaphragm style.

Note: Most designers are unaware of the advantages of piston valves; hence piston flush valves are not in their “standard” specifications. Piston valves are cheaper, handle larger fluctuations in water pressure, handle dirty water bettter, and last longer with less maintenance.

7.3 In general manual flush valves are to be used.

7.4 Water closets

- Siphon jet
- Elongated bowl
- Wall Hung
- Tested and verified able to pass at least 250 grams of solid waste material per flush
**Exception:** Floor mounted tank type may be used in the off campus farm and support buildings.

### 7.5 Urinals
- Blowout style
- Integral side panels.

### 7.6 Sinks
- White vitreous china for single sinks
- Corian® or equal material, neutral color with flecks for counter sinks
- Self-draining tops

### 7.7 Faucets
- 4" O.C.
- Lever handles
- Strainers
- Ceramic cartridge
- Use automatic faucets only with HW re-circulating pump, so that warm water is immediately available at all times.