1. This information provides guidelines for pipe and tube railings. Temporary facilities and controls are covered in other parts of these standards or are available from the Facilities Management (FM) project representative.

2. FM project representative, Public Safety Office, and Environmental Health and Safety Office shall approve selection of materials, means, and methods. Unless otherwise approved, design intent requires means and methods that provide minimal disruption to adjacent building activities and operations.

3. When working on or adjacent to existing buildings, match existing materials as closely as possible. For maintenance purposes, stainless steel is the preferred material to be used for exterior railings. Consult with FM project representative when designing new railings near existing railings.

   a. Require MSDS information for all products.

5. Standard railings on campus vary. Verify design details with project representative.

6. Stainless steel tube, type 302/304, 1½" OD. Directional #4 finish unless noted otherwise. Provide factory elbows wherever possible.

7. Use Schedule 40, 1¼" inside diameter pipe for railings, posts, and intermediate railings, unless noted otherwise. Provide factory elbows wherever possible.

8. Guardrail infill as required by code.

9. Use pre-formed (factory) pipe elbows. Provide closure at ends returned to walls (no open ends). Use 3/16" plate for iron pipe. Use stainless no less than gauge of tubing.

10. Locate supports (brackets or posts) for handrails no more than 5'-0" o.c. and no more than 12" from ends returned to wall. Ends returned per code.

11. Railing posts set in concrete:
   a. Coredrill method: Coredrill inside perimeter reinforcing steel; coredrill at least ½" bigger than diameter of post. (Verify that this method is structurally acceptable when used.)
   b. Sleeve method: Provide sleeves of galvanized steel pipe no less than 6" long and with i.d. no less than ½" greater than o.d. of post. Provide steel plate closure welded to bottom of sleeve, width and length no less than 1" greater than i.d. of sleeve. Weld 2' piece of #3 rebar to sleeve.
   c. Design concrete walls (or grade beams) minimum 8" thick to accommodate sleeve. Use 2 top bars in wall, one on each side of sleeve. Tie off the #3 bar welded to sleeve to one of the top bars.

12. Railing posts set in brick surfaces, remove brick:
   a. excavate for a 12" diameter concrete plug
   b. set railing with concrete around posts
   c. backfill and replace setting beds
   d. replace brick and cut to fit around post.


15. Removable bollards need to be coordinated with WWU representative for lockable function options and accessibility.

End