### Piping Design Specification - Minimum Access Requirements Table (2)

<table>
<thead>
<tr>
<th>Object</th>
<th>C.L Elevation Above Ground Or Platforms (mm)</th>
<th>Minimum Access Requirements</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Permanent Platform</td>
<td>Fixed Ladder</td>
</tr>
<tr>
<td></td>
<td></td>
<td>With Stairway</td>
<td>With Ladder</td>
</tr>
</tbody>
</table>

1. Piping Special components not Required maint. / operation
   - Up to 1800
   - Above 1800
2. Piping Special components Required maint. / operation
   - Up to 1500
   - 1500 to 3600
   - Above 3600
3. Spring Supports
   - N/A
4. Blanks on Piping
   - Up to 1800
   - 1800 to 3000
   - Above 3000
5. Blanks on Equipments
   - Above 3000
6. Flow Elements + valve (Orifice) (Venturi)
   - Up to 3600
   - Above 3600
6. Pipe Rack
7. Temperature Instruments
   - Up to 3600
   - Above 3600
8. Instrument Transmitters
   - Up to 1800
   - Above 1800
9. Level instruments + valve
   - Up to 3600
   - Above 3600
10. Pressure Instruments + valve
    - Up to 1800
    - 1800 to 3600
    - Above 3600
11. Manholes
    - Tower
    - Vertical Drums on Head
    - Vertical Drums on Shell
    - Horizontal Drums on top
    - Horizontal Drums on Shell
    - Horizontal Drums on Heads
    - Tanks on shell
    - Tanks on Roof
    - Others
12. Heat Exchanger Shell and Channel Cover (Lowest shell)
13. Compressors / Turbines
14. Air Coolers Motor
15. Air Cooler Header Boxes
16. Elevated Stacks
17. Heaters
18. Local Sampling Point
19. Elevated Hydrant / Monitor
20. Over Head Electrical Crane

### Tables Notes:

1. Maximum length of movable ladders shall be considered 3.6 m.
(2) Maximum height of movable step shall be considered 2.0 m.

(3) Extended stem valves and chain operated valves, or extension handle of valves can be applied, if the valves of NPS 2” and larger can not be operate within the reach from the platform in accordant with Par. 4.4.

(6) For local sampling points, which will be manipulated frequently, stair access shall be realized, if the platform is located more than 1.5m above ground.

(7) For integral type flanged flow instruments such as variable area flow meter, positive displacement flow meter, magnetic flow meter, turbine meter, etc., permanent platform with ladder access shall be provided as a minimum access requirement.

(6) Generally all equipment shall be accessible for operation and maintenance.