

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

Object	C.L Elevation Above Ground Or Platforms (mm)	Minimum Access Requirements					Remarks	
		Permanent Platform		Fixed Ladder	Movable Ladder (Note 1)	Movable Step (Note 2)		
		With Stairway	With Ladder					
1. Piping Special components not Required maint. / operation	Up to1800							
	Above 1800		O		O	O		
2. Piping Special components Required maint. / operation	Up to1500							
	1500 to3600				O	O		
	Above3600		O					
3. Spring Supports	N/A							
4. Blanks on Piping	Up to1800							
	1800 to3000					O		
	Above3000		O					
5. Blanks on Equipments	Above 3000		O					
6. Flow Elements + valve (Orifice) (Venturi)	Up to 3600				O	O		
	Above 3600		O	O	O		(Note 5)	
	Pipe Rack							
7. Temperature Instruments	Up to 3600				O	O		
	Above 3600			O				
8. Instrument Transmitters	Up to 1800							
	Above 1800			O	O	O		
9. Level instruments + valve	Up to 3600				O	O		
	Above 3600			O	O			
10. Pressure Instruments + valve	Up to1800							
	1800 to3600				O	O		
	Above3600			O				
11. Manholes	Tower		O					
	Vertical Drums on Head	ALL		O				
	Vertical Drums on Shell	Up to 3600				O	O	
		Above 3600		O				
	Horizontal Drums on top	ALL		O				
	Horizontal Drums on Shell	Up to 3600				O	O	
		Above 3600		O				
	Horizontal Drums on Heads	Up to 3600				O	O	
		Above 3600		O				
	Tanks on shell	As per approved drawing						
Tanks on Roof	Up to 3600			O				
	Above 3600	O						
Others	Above 1800		O					
12. Heat Exchanger Shell and Channel Cover (Lowest shell)	Up to 3600				O	O		
	Above 3600		O					
13. Compressors / Turbines		O	O				(Note 6)	
14. Air Coolers Motor		O						
15. Air Cooler Header Boxes			O					
16. Elevated Stacks			O					
17. Heaters	Above 3000	O						
18. Local Sampling Point	Above 1800		O					
19. Elevated Hydrant / Monitor		O						
20. Over Head Electrical Crane			O					

**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.