## Human Factors Engineering Design Guide – Facility and Equipment Physical Access Checklist

CHECKLIST: FACILITY AND EQUIPMENT PHYSICAL ACCESS								
	CRITERIA	YES	NO	N/A	COMMENTS			
1.	Does the design and location of the equipment provide for safe,							
	convenient and unrestricted body and/or manual access from all							
	required sides?							
2.	Are platforms arranged to avoid interference with access to							
	connections, valves, and nozzle flange bolting?							
3.	Are flanges inside a vessel skirt avoided?							
4.	Is there sufficient access to components such as valves, bolts, etc.,							
_	that are enclosed within a piece of equipment?							
5.	Is there sufficient headroom for unobstructed access under elevated process equipment and platforms?							
6.	Is the allowance for insulation and thermal growth included in							
	determining the available clearance?							
7.	Is additional clearance or other means of protection provided to avoid							
	contact with dangerous objects (i.e., hot, cold, sharp edges, electrified, etc.)?							
8.	Is access from the ground, work landing, or platform within the							
	distance required to perform the observation or physical task?							
9.	Can the employee maintain both feet on a solid work surface when							
	performing designated tasks, e.g., operation or inspection of a valve?							
10.	Is the access from all edges of a packaged unit sufficiently wide							
	enough for employees to monitor, operate, and maintain the							
	equipment installed on the skid?							
11.	Are the height, angle, and reach to hand-wheels or levers or							
	manually operated valves within the reach and strength limits of the							
40	expected operating population?							
	Is the use of chain operated valves minimized?							
13.	Are the height, angle, and reach of covers and media of frequently							
	cleaned filters within the reach and strength limits of the expected							
11	operating population? Is sufficient headroom provided for routine inspection and							
14.	maintenance without crawling?							
15	Do work areas have a minimum clearance of 1.2 m (4 ft) not							
10.	including equipment laydown areas?							
16.	Is sufficient clearance for removal and replacement of equipment							
	provided?							
17.	Is the use of special tools avoided?							
	Are special handling devices provided where inaccessible by crane?							
	Is sufficient space provided for the use of tools?							
	Is there a waist-level work surface available adjacent to major							
	equipment, valve manifolds, control panels, etc.?							
21.	Are infrequent operations considered when determining clearances							
	and access?							
	Does the design consider access for blinding a piece of equipment?							
	Are spectacle blinds specified?							
24.	Are blinds heavier than 100 pounds vertically oriented and accessible							
	by a lifting device?							
	Are valves arranged to facilitate blinding?							
26.	Do the access calculations appropriately consider the use of gloves,							
	boots, or other PPE?							



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	Are operating aisles and walk-through paths at grade or on elevated platforms kept clear of equipment, protruding valve stems, small piping, and instruments, even on a temporary basis?							
	Are there obstructions along the paths required for emergency access and egress?							
29.	Is passage through a walkway or platform free from interference with any fully open access doors?							
30.	Is there a minimum manway access clearance (60 cm or 24 in) for access into and through all passageways that must be traversed in order to conduct inspections of any vessel without removing interfering partitions, support members, etc.?							
	Are the designated locations for manual sampling, NDT, corrosion probes, etc., accessible from expected locations?							
	Are test terminals and test locations on equipment accessible and compatible with the testing equipment?							
	Is the use of ladders and portable platforms or scaffolds minimized?							
34.	Are adjacent equipment connected by elevated walkways and platforms?							
35.	Are splashguards provided or is the release directed away from the person?							
36.	Are employees protected from splashing with hazardous materials when operating drains, vents, bleeds, or opening equipment or sampling ports?							
37.	Are valve stems and gear operators located so that they do not obstruct the access or walk-through pathway in front of the valve?							
	Are adjacent hand-wheels or levers sufficiently spaced to avoid knuckle injury (min. 8 cm or 3 in)?							
39.	Are valves arranged to avoid biomechanically strenuous postures while operating them?							
	Were remote valve actuator considered as an alternative to providing adequate access?							
41.	Are indicators located and oriented so that the operators can view them during normal inspections without the need of ladders or stooping/kneeling?							