

INTRODUCTION

When designing a work area, keep in mind the appropriate distribution of the different spaces, according to the logical sequence of the production process and anticipate the roads of circulation for materials and people, including those that are at different levels, in order for the pedestrians and vehicles to use it easily, and safely in accordance with what they have been assigned for.

To obtain an acceptable level of security bottlenecks and the highest crossovers in areas of transit must be avoid. The employee should not be exposed to hazards due to limited spaces, inadequate clearances, inadequate lighting conditions, poor distribution of machinery and equipment, lack of hygiene and car accidents. It is, therefore, important to establish criteria of rationality in the distribution of workspaces, watching the accomplishment of what have been established.

Accidents that occurred in traffic surfaces and workspaces show high levels of incidents due to falls, bumps, crashes, etc., which are around:

- 11% of minor accidents.
- 9 % of major accidents.
- 1, 5% of fatal accidents.

While workplace accidents on stairs represent:

- 5% of minor accidents.
- 7% of major accidents.
- 1% of fatal accidents.

BASIC PREVENTIVE CRITERIA

Transit surfaces, and corridors

The organization of flows of people, vehicles and materials can be the source of risks, so it is necessary to ensure that the design of the corridors and transit surfaces has the proper and correct dimensions. Should be taken into account:

- The amount of workers, the size of the elements of transport and circulating cargo avoiding, as much as possible, interferences
- That the areas where workers can use to travel to perform their activities are safe (regular flooring, not slippery, clean and free of obstacles, without significant gradients, correct illumination, dangerous areas, and protected overpasses, etc.).
- That the areas of materials or vehicles disposal are away from the transit areas.
- For evacuation purposes, the placement of the machinery, the location of entry and exit doors, etc will be anticipated. The emergency exits must remain clear and lead as directly as possible outside or to a safety zone.

Workspaces

The design and organization of workspaces, should take into account the characteristics and demands of the job itself and the necessary relationship between the other workplaces. Raw materials must arrive at the workplace easily and through shortest possible path. Finished products and waste materials must be able to be removed without disturbing the movements of operators. It is important to account with enough space to place all intermediate storage or other materials that might accumulate around the place of work.

The placement of the machines should allow workers to perform their work comfortably with easy accessibility to different parts of machinery and equipment, avoiding unnecessary or forced movements, according to ergonomic criteria.

Moving parts of machinery should be taken into consideration, since its movement may invade transit areas.

When work is conducted in height, the platforms will be wide and be protected. When the complete safety of the platform cannot be guaranteed, a safety belt will be used.

Is necessary to consider that occasional work can be performed (maintenance, assemblies, etc) in order to leave the necessary space and to have appropriate resources.

The access will be prohibited to non authorized personnel from areas at risk

Ladders

Ladders themselves are sources of danger. It is necessary for the ladders to have the building features and minimum size necessary. Fixed ladders will be used for normal access. Service ladders with less strict dimensions (maximum angle 60° and step width of 5.9 ft) will only be used for occasional access and, preferably, displacement without load, . Portable ladders will only be used for very occasional access, avoiding working on them. Before being used, ladder will be checked order to detect possible defects (chipped steps or rungs, loose nails or screws, broken stops, etc.)

Wood ladders should only be painted with clear varnish in order avoid hiding defects. The rails should be of one piece, and steps should be well assembled, not only nailed.

Climbing upwards and downwards should always be facing front, holding with both hands and watching over the shoes to verify they are free of grease, mud or any other slippery substance. Due to instability of manual ladders, it is important to watch the angle of inclination that will fulfill the relationship 1 to 4 between the height from the ground to the top fulcrum and the horizontal separation distance. Precautions of conservation and use must be maximized.

BASIC REGULATION

Royall Decree 486/1997 on minimum safety and health of workplace

SAFETY CONDITIONS

1. WORKPLACES

People affected :

Working area Date Next revision date

By

1. The characteristics of the floor are correct and it is kept clean	YES	NO	The pavement will be consistent and non slippery and easy to clean. constitute a homogeneous whole flat and smooth and will stay clean
2. Circulation areas are delimited and unobstructed	YES	NO	Determine material disposal sites outside busy areas and place signs
3. The visibility of vehicles is guaranteed on the circulation areas.	YES	NO	Install reflective mirrors and signals, or change routes whenever necessary
4. The width of the circulation areas for people and materials is enough	YES	NO	Keep minimum needed measurements. At least one pedestrian corridor should have a width of 3ft
5. The vehicles path is wide enough to ensure circulation of people without interferences.	YES	NO	Differentiate as much as possible these areas. Increase width and signal
6. Floor openings, steps and elevated work platforms are protected	YES	NO	Install 90cm high guardrails and safe and signalized toe boards or skirting
7. Walking areas near hazardous facilities are protected	YES	NO	Protect up to a height of 8ft
8. Minimum safety measurements are kept: 10ft height (8 ft in offices), 6.5 square feet of free area and 32 cubic feet in volume	YES	NO	Expand physical space
9. Dimensions adopted allow safe movement	YES	NO	Staff mobility is performed safely
10. Minimum distance between machinery is 2.6ft.	YES	NO	Increase distance between machinery
11. Workspace is cleaned and ordered, free of obstacles and with the necessary equipment	YES	NO	Have places for storage and disposal of materials and equipment. Improve organizational habits and the organization of work
12. Work spaces are sufficiently protected from potential external risks (falls, splashing, etc)	YES	NO	Protect adequately the workspace from external agent interferences
13. The stairways of four or more rungs are equipped with handrails of 3ft in height, toeboards and vertical bars.	YES	NO	Install normal guardrails
14. Every step has the same measurement (0.8ft if fixed, 0.5ft if are service ladders)	YES	NO	Outlined measures will be fulfilled, respecting the relation between trace and riser

15. Steps are uniform and non-slippery	YES	NO	Correct by installing anti-slip bands
16. Are well built and designed for purposes that are used	YES	NO	Must withstand a load of 500kg/cm ³ , and with a safety factor of four
17. Hand ladders are used for occasional access only	YES	NO	Implement stairways or service ladders
18. The wooden ladders have rungs or side rails assembled and in one piece	YES	NO	Monitor construction characteristics and establish a revision plan
19. Ladders have proper braces or have restraint gripping at the upper part	YES	NO	Install non-slip shoes or restraint hooks at the top
20. Are less than 16ft long, unless guaranteed resistance	YES	NO	Use guaranteed when using ladders over 16 ft
21. Proper working habits are observed while using portable ladders.	YES	NO	Training is need. Both when climbing up and down, always face towards it
22. Loads carried on ladders are light in weight and allow hands free	YES	NO	Hands should be free to hold on
23. T ladders are available and in perfect shape	YES	NO	Place a halyard
24. Adequate lighting is available in each zone (hallways, workplaces, stairways) to its specific role	YES	NO	Illuminate in accordance with the established minimum. Minimum in areas of high frequency step = 50 lux

ASSESSMENT CRITERIA				
VERY POOR	POOR	NEEDING IMPROVEMENT		
5 or more poor	5, 6, 7, 12, 13, 14, 15, 18, 23	1, 2, 3, 4, 8, 9, 10, 11, 16, 17, 19, 20, 21, 22, 24		
EVALUATION RESULTS				
	VERY POOR	POOR	NEEDING IMPROVEMENT	CORRECT
OBJECTIVE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SUBJECTIVE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MEASURES TO BE TAKEN IN ORDER TO CORRECT THE DETECTED DEFICIENCIES				