



1.0 WORK SPACE, ACCESS TO EQUIPMENT AND MATERIALS, AND THE USE OF WOOD AND OTHER COMBUSTIBLE MATERIALS

1.1 SECTION CONTENTS

This section provides guidance for access, work space and work areas.

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NOTE: An asterisk (*) after a section of text indicates that the information in that section is new or revised as of September 1996.

Fed-OSHA 1910.22 & .30

1. The floor of every workroom shall be maintained in a clean and, so far as possible, a dry condition. Where wet processes are used, drainage shall be maintained, and false floors, platforms, mats, or other dry standing places should be provided where practicable.
2. Where mechanical handling equipment is used, sufficient safe clearances shall be allowed for aisles at loading docks, through doorways, and wherever turns or passage must be made.
3. Aisles and passageways shall be kept clear and in good repair, with no obstruction across or in aisles that could create a hazard.
4. Permanent aisles and passageways shall be appropriately marked.
5. Aisles shall be provided of sufficient width to permit free movement of employees bringing or removing material. This aisle is to be independent of working and storage space.

⚡ Chevron Interpretation

Chevron interprets this to require an aisle of 22 inches as a minimum.

1.2 CONDITIONS WHICH REQUIRE SAFE ACCESS*

A. AISLES AND FLOORS AND OVERHEAD CLEARANCE

Chevron Guidelines

1. Long aisle space should be 36 inches minimum.
2. Short aisle space shall be 30 inches minimum.
3. Short aisles may be crooked, but long aisles should be straight.
4. Main walk routes through plants should be 48 inches minimum. These routes cannot be encroached upon by individual equipment; e.g., small piping, valves (extended valve stem position), pipe supports, instruments or electrical items.
5. A minimum of 6 feet 8 inches overhead clearance from the ground, floor or platform shall be maintained in aisles and around equipment, valves, etc. where operators pass. A preferable height is 8 feet overhead clearance. (7 feet overhead clearance is required over stairs.)

Cal-OSHA 3272

1. Where aisles or walkways are required, machinery equipment, parts, and stock shall be so arranged and spaced as to provide clear walkways or aisles of not less than 24 inches in width and 6 feet 8 inches clear headroom to a safe means of egress from a building.
2. Where aisles or walkways become hazardous due to lack of proper definition, they shall be clearly defined by painting lines, curbing or other method of marking.
3. Whenever aisles, walkways, or crawlways become slippery, high-friction surfaces, cleats, coverings, or other equivalent protection against slipping will be required.

Cal-OSHA 3273

1. Permanent floors and platforms shall be free of dangerous projections or obstructions, maintained in good repair, and reasonably free of oil, grease, or water. Where the type of operation necessitates working on slippery floors, such surfaces shall be protected against slipping by using mats, grates, cleats, or other methods which provide equivalent protection. Where wet processes are used drainage shall be maintained and false floors, platforms, mats, or other dry standing places provided.



1.3 ACCESS TO EQUIPMENT AND MATERIALS*

A. GENERAL

Chevron Guidelines

1. Provide 30 inches of access space (short passageway) around equipment, valves, etc. which must be operated or maintained routinely. Additional space should be provided when operating or maintenance needs dictate. See *Figures 1.1 and 1.2* for details.

Cal-OSHA 3270

1. Every permanently elevated location where machinery, equipment, or material which is customarily operated or frequently repaired, serviced, adjusted or otherwise handled shall be provided with a safe platform or maintenance runway. Access shall be by means of either fixed ladder or permanent ramps or stairways.
2. Every permanent pit, sump or other sunken location 30 inches or more in depth, or from which, machinery, equipment, or materials are customarily operated or frequently repaired, serviced, adjusted or otherwise handled shall be provided with a portable or fixed ladder or permanent stairway. (Also see Section 1.3 B, Access To Controls and Handwheels.)

Cal-OSHA 3273

1. Catwalks shall be no less than 18 inches wide and have 6 feet 6 inches clear headroom.

B. ACCESS TO CONTROLS AND HANDWHEELS

Chevron Guidelines

1. Controls such as valve handwheels, levers, wrenches, lubricators, instruments, machinery controls, or other equipment requiring manual operation should be in safely accessible locations and should not obstruct access clearances in all operated positions.
2. Valve handwheels operated from elevated platforms 10 feet or more above grade should be located within the confines of the platform railing. Valve handwheels operated from outside the platform railing should be positioned in accordance with *Figure 1.3*.
3. Root, block, vent, and drain valves for pressure and level instruments can be accessed from a ladder, if located no more than 24 inches from the ladder stringer and no more than 45° from the plane of the ladder.
4. Two-handed operation of valves or equipment from a ladder is prohibited.

Cal-OSHA 3272(b)

1. Valves or other controls shall not be so located that their manipulation exposes the employee to hazards of dangerous moving parts of prime movers, machines, or transmission equipment.

Cal-OSHA 3274

1. Where pipe valves require daily manipulation and are so located that they cannot be reached or operated from the floor, a permanent platform or other safe means of operation shall be provided.

Cal-OSHA 6846

1. Safe access shall be provided to all valves or their remote controls, whenever it is necessary to operate them.
2. The following valves, or their remote controls, shall be provided with means of ready and safe access:
 - valves manually operated as often as once a shift
 - valves on fuel lines to a plant, unit, or internal combustion engine
 - valves on lines, which may be used during emergency operations

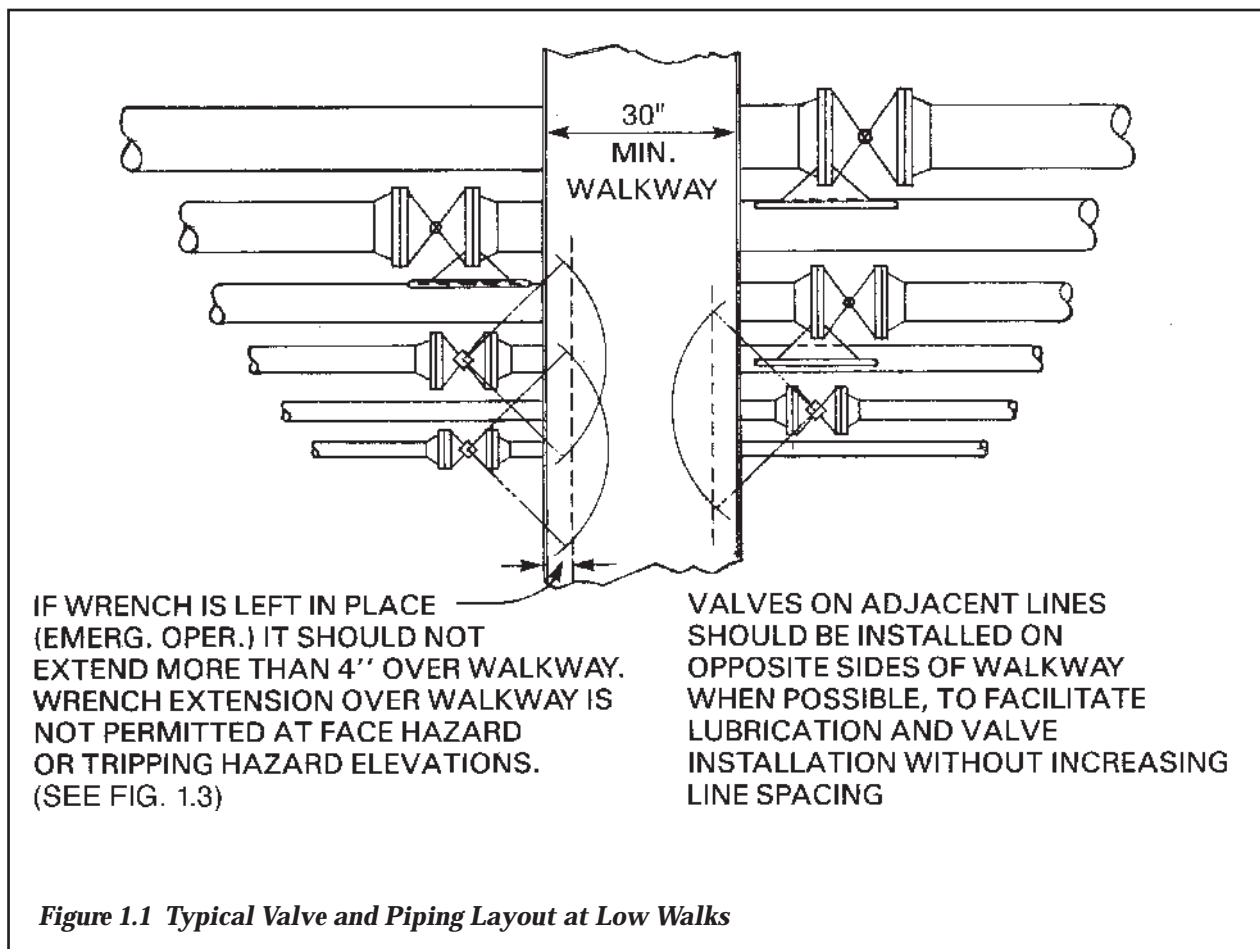
C. OPERATING VALVE HANDLE AND HANDWHEEL INSTALLATION

Cal-OSHA 6846

1. If a permanently attached handle is used on a quarter turn valve, it shall be installed or placed on the valve in such a position that the handle is at right angles to the line when in the closed position, and parallel with the line when in the open position. If compliance with the provisions of this subsection obstructs a passageway or walkway, the handle may be bent so as to provide clearance.

Chevron Guidelines

1. 3-inch clearance should be maintained all around valve handwheels. 1-1/2 inch and smaller valves where operation is by hand or wrist motion may have less clearance if finger clearance is provided.*
2. Extension handles may be used for locating valve handwheel at proper elevation or providing adequate clearances. "High-head" extensions fitted with handwheels are preferred, but where accessibility for lubrication and maintenance is not a problem, tee-handle socket extensions are acceptable. See *Figure 1.4* for details.



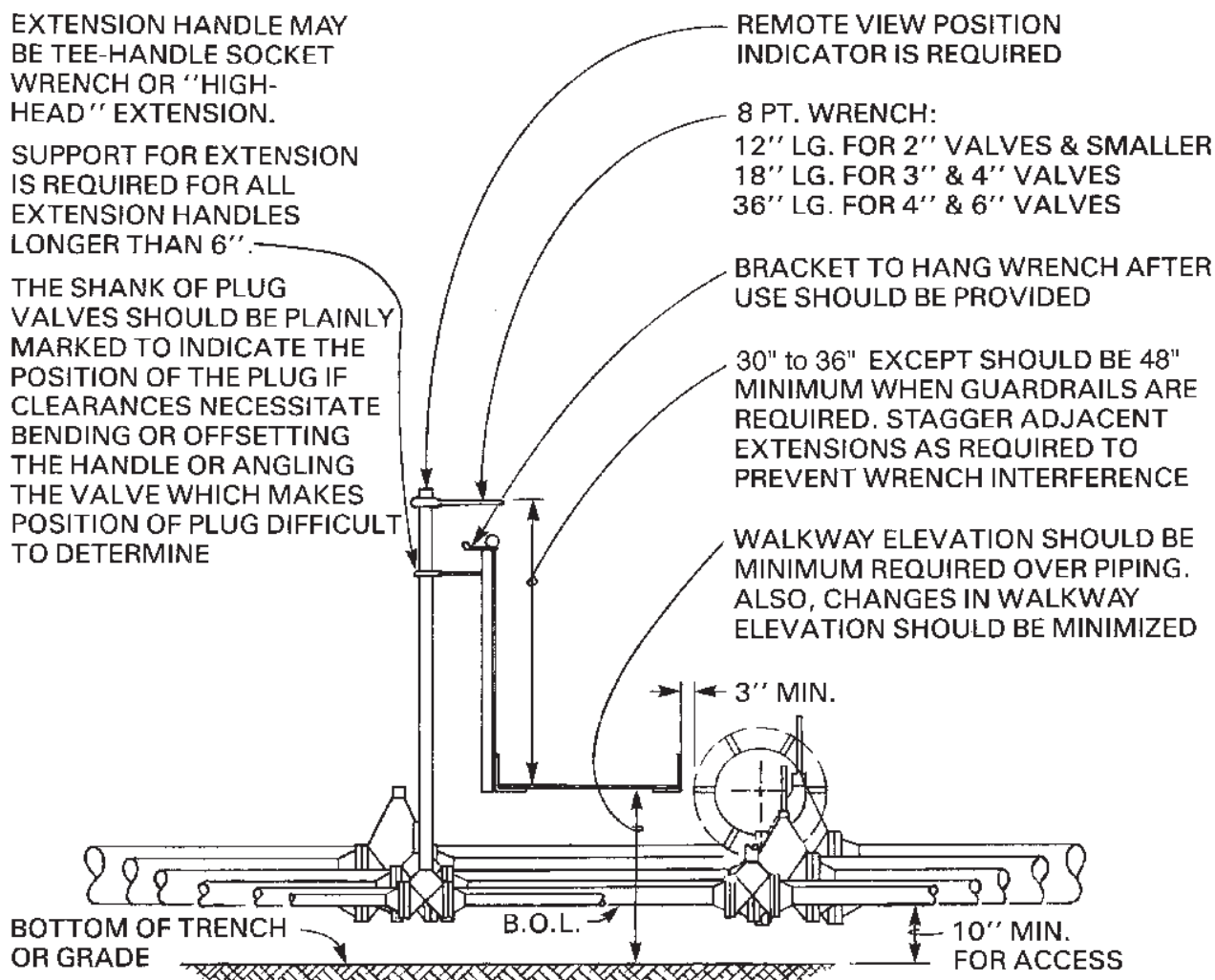
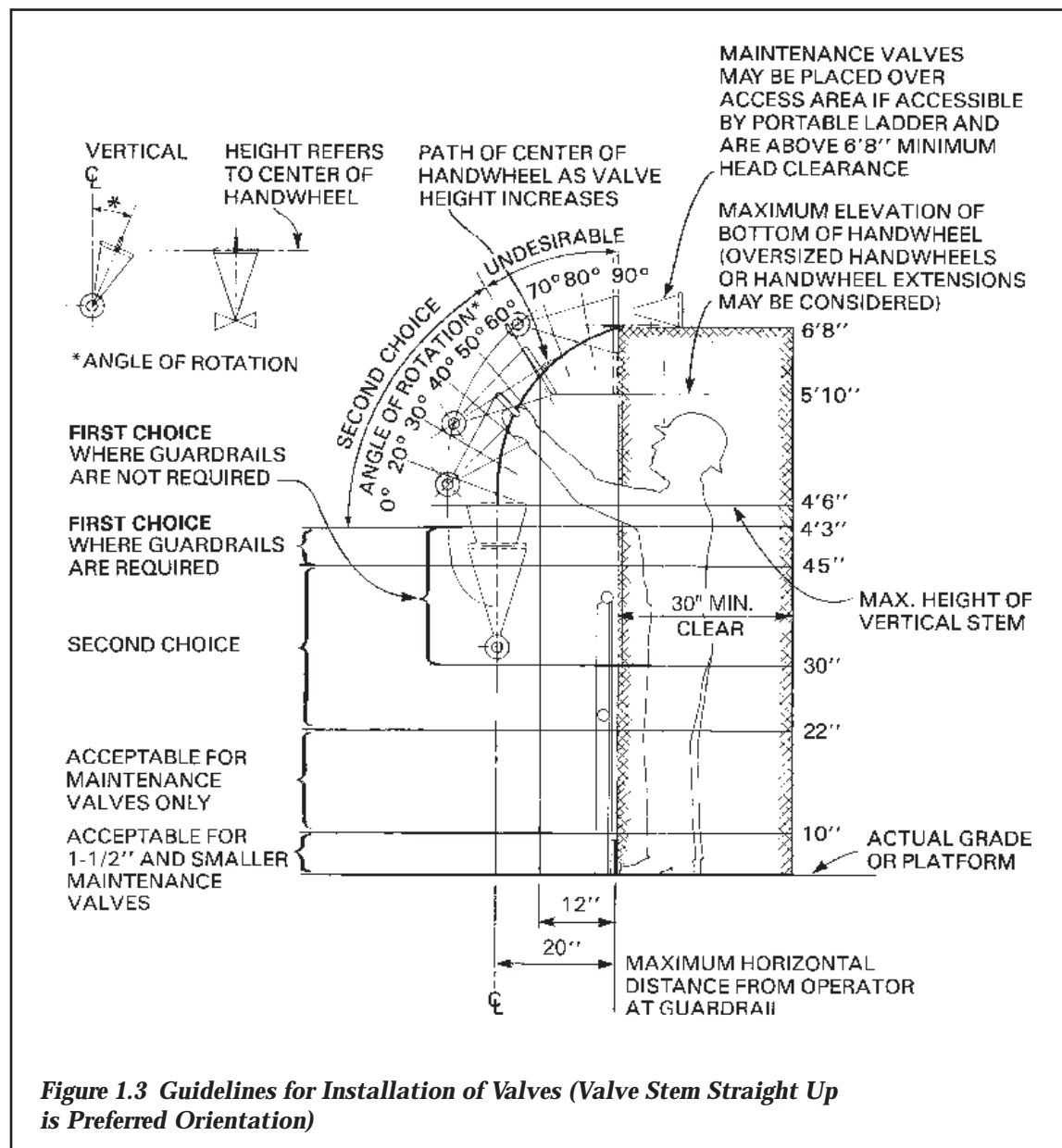
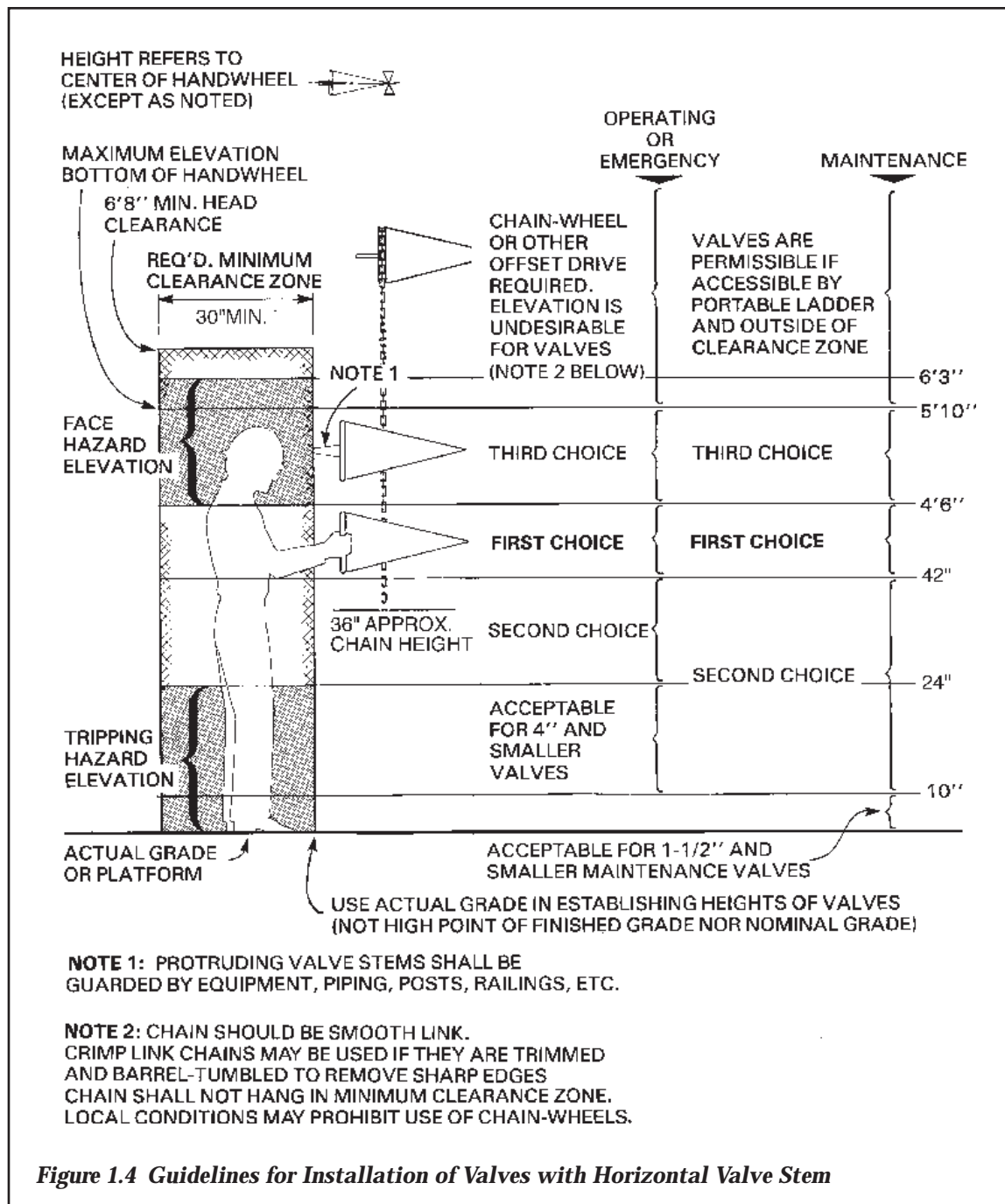


Figure 1.2 Valve Arrangement for Access from Walkways





Fed-OSHA 1910.23

Note: Exits must comply with the requirements of 1910.35 - .37, "Means of Egress."

Cal-OSHA 3235

1. Buildings or structures used for human occupancy shall have at least 1 approved exit door per the requirements of 3235.

Fed-OSHA 1910.36(b)(8)

1. Every building or structure, section, or area there of such size, occupancy, and arrangement that the reasonable safety of numbers of occupants may be endangered by the blocking of any single means of egress due to fire or smoke, shall have at least two means of egress remote from each other, so arranged as to minimize any possibility that both may be blocked by any one fire or other emergency conditions.

Cal-OSHA 3222 (b)

Note: The arrangement of exits and the distance to exits must comply with the requirements of Cal-OSHA 3222. The distance to exits must be reduced if the exception to 3222(b) applies.

1. **EXCEPTION:** Every area used mainly for the storage of materials liable to burn, with extreme rapidity or from which poisonous fumes or explosions will result upon exposure to fire, shall have an exit within 75 feet of any point in the area where employees may be present. Where automatic sprinkler protection is provided, distances may be increased to 100 feet.

Cal-OSHA 3228 (h)

1. Every working area specified below shall be provided with at least two exits so located with respect to each other as to provide an alternate means of escape to a place of safety:
 - Elevated platforms 10 feet or more above ground or floor or pits 30 inches or more in depth, having 200 or more square feet of area, floors or rooms in or on which are located steam, gas, oil or air engines, motors, compressors, steam or

(continued next page)

1.4 MEANS OF EGRESS

A. INDUSTRIAL BUILDINGS FOR OFFICE USE*

Chevron Guidelines

1. Refer to the guidelines in Section 3.3 E, "Doors and Landings for Access/Egress of Buildings (Incl. Portable Buildings for Office Use)."

B. CONDITIONS WHICH REQUIRE SECONDARY EGRESS FROM INDUSTRIAL BUILDINGS AND STRUCTURES

Chevron Guidelines

1. A secondary means of egress (which may be a ladder or second stairway) is required:
 - for elevated work locations 10 feet or more above grade or floor which have 200 square feet or more area, or
 - for elevated locations where a potential hazard or injurious chemical exposure may block access to an exit.
2. The location of this secondary means of egress shall be such that an alternate means of escape to a place of safety is provided. Multiple exits for an area should be located as far from each other as possible, **but not more than 75 feet from any point where employees may be present unless automatic sprinkler protection is provided.***



hydraulic turbines or pumps, mixing vats, pans, tanks, or chemical processing equipment and where the absence of a second exit would increase the risk of injury from hot, poisonous, corrosive, suffocating, flammable, or explosive substances.

Cal-OSHA 6799

1. Two means of egress shall be provided in the following situations when employees must perform operating duties and when the lack of a second means would prevent the egress... in case of fire or other emergency:

- any elevated platform 10 feet or more above the floor or ground level
- on fired process equipment
- where the platform serves or is connected to 3 or more vessels

The means of egress may be by fixed ladder, stairway... and shall be so located relative to each other as to provide reasonably safe alternative means of egress.

1.5 THE USE OF WOOD AND OTHER COMBUSTIBLE MATERIALS

A. GENERAL REQUIREMENTS

1. The use of combustible building materials such as wood and fiberglass in areas of hydrocarbon storage and handling is not recommended due to the increased fire load, the possibility of spreading the fire, and the risk of flash back following extinguishment. The use of non-combustible building materials such as steel or concrete is preferred.

B. NEW CONSTRUCTION

1. The use of combustible materials for walkways, platforms, ladders, and stairs is not acceptable if their involvement in a fire could:
 - spread the fire to a tank top, another tank basin, plant or process area
 - increase the damage to important equipment, structures or controls
 - prevent access to important valves and controls during or immediately following the fire
2. The use of combustible materials is acceptable for temporary walkways, platforms, scaffolding, etc., providing they meet other requirements of this manual.
3. The use of combustible material including wood or fiberglass is acceptable in corrosive atmospheres such as fertilizer plants, cooling water towers, and some chemical areas.



C. EXISTING FACILITIES

1. Combustible building materials in the areas listed below can remain in use until replacement or repair becomes necessary. At that time non-combustible materials such as steel and concrete shall be used. No new wood is to be installed in these areas:
 - inside tank impound basins or diked areas if the tank contains Class I flammable liquids (flash < 100°F)
 - for stairs on tanks containing Class I or II flammable and combustible liquids (flash < 140°F)
 - for tank manifold platforms
 - for access to large or critical pump or piping manifolds
 - for on plot labs, sheds, or other buildings in facility handling, storing, or processing Class I or Class II flammable and combustible liquids and gases

1.6 NOTES AND REFERENCES

ADDITIONAL REFERENCES

CRTC Standard Drawing GB-L99961
"Standard Valve Installation Guide"