

Checklist – Ergonomics

Organization of Work

- Is the work formed in shifts; if so what system is used? If rotating, what are the extra psychological and physiological loads imposed upon the worker? What are the actual hours of work? Are there any customs and practices that need close scrutiny?
- What is the average overtime? Is overtime income built into the job? Should this be recognized?
- What formal meal and refreshment rates are provided; are they organized effectively?
- Is the task paced? Is the pacing necessary and/or effective?

Environmental Load

- Are any conditions legally stressful? Are all recommendations under health and safety complied with?
- Do you know the air temperature, humidity, radiation and air movement? What are the limits in summer and winter?
- How are preventative measures used to mitigate adverse climatic conditions and do they impede performance?
- Is the worker exposed to rapid environmental changes during the course of his or her single shift?
- What is the noise level; does it interfere with performance; what risk is there of hearing loss?
- If noise level is high, how should preventative measures be taken; are hearing losses of workers screened on recruitment?
- Are there any other potential environmental hazards, e.g. dust, chemical agents, ultra-violet light, ionizing radiation? In cases of doubt has specialist advice been obtained in writing?
- To that extent should personal protective devices be provided; is the worker adequately protected from adverse weather as well as from hazardous substances?

Work Method -- Physical Demands

- Does the task involve a heavy muscular load; if so, does this limit selection of worker?
- Does the work involve overloading small muscle groups?
- Can the workload be transferred by method change to larger muscle groups thus reducing fatigue?
- To what extent can muscular effort be reduced by using suitable equipment?
- To what extent are heavy loads snatched or carried awkwardly?
- Are small or large muscle groups involved in static exertion by holding tools or material; can jigs be used?
- Is alternation of work and rest, and of static and dynamic work built into the work method?
- Is the pattern of movement in agreement with the principles of motion economy?
- Does the task require great accuracy of movement; is there an absence of feedback?

The Workplace -- Physical Demands

- Is the workspace adequate?
- Does the position of equipment, controls and workbench allow a satisfactory posture and correct control by hand and foot?
- Does the worker have to stand for all or most of the time; alternatively, must he or she remain seated for all the time?
- Is the provision for the worker to sit adequate in relation to the task?

- Is the height of the worktable satisfactory in relation to posture and viewing distance; if posture is unsatisfactory is it due to the construction of the machine, workbench, controls, or portable instruments?
- Is the surface of the workbench satisfactory in regard to hardness, smoothness, color, and slope?
- To what extent are any foot controls required?
- Are pedals satisfactory in respect of position and size, and is special allowance made if there are more than two for sitting postures or any used for a significant time for standing postures?
- Are foot rests and/or supports for arms, hand, back, available if required; do any of these restrict the safe and effective operation of the task?
- Are the characteristics of the hand controls compatible with the forces required to operate them (shape, size, surface) and are the forces acceptable?
- If hand tools are used, are they the correct ones for the task; are they adequately maintained, and are they accessible to the operator in the most effective way?
- Are containers used; is their position, size and weight satisfactory?
- To what extent can the speed of the machine be adjusted according to the skill and/or preference of the operator and how does this affect output?
- Is design and layout of the equipment satisfactory for repair and maintenance?
- Are any of the considerations unsatisfactory so as to bring liability under health and safety regulations; are recommendations as to operator comfort and stress clearly distinguished?

Workplace Sensory Demands--Vision:

- Does the task impose high visual demands?
- Is the illumination level adequate for the visual demands required?
- Is lighting met by general and/or local lighting?
- Is the visual contrast between workplace and surroundings as it should be?
- Is there any discomfort glare; is there any disability glare?
- Is color discrimination needed; are operators screened for visual acuity, and what allowances are made for ageing?
- Are controls, instruments, equipment etc. in comfortable visual range and adequately lit?
- Are warning lights correctly designed and located?

Hearing:

- To what extent are auditory signals used; are their characteristics appropriate to the message conveyed?
- Does noise level permit adequate verbal communication if required in the task?
- Is confusion possible because of auditory signals required for other tasks?

Other Senses:

- Does the task require accurate tactical discrimination?
- Are all controls and tools recognized by touch, and are they positioned correctly?
- Does the task require a good sense of balance (with ladders), and are these workers regularly screened, especially older workers?
- Does the task require accurate position movements or exact application of muscular force?
- Does the task require a good sense of smell or taste; if so, has any attempt been made to check the abilities of the operators?

- Have the effects of vibration, infrasound or ultrasound been thought of seriously, both in the health and safety context and in terms of performance decrement?

Visual Displays and Dials

Legibility:

- Can the required data be obtained from display quickly with the required accuracy?
- Are the scales correctly graduated and are as simple as possible; not giving needless or spurious accuracy?
- Do the letters, numbers, graphics and markings conform to the relevant standards in relation to the required reading distance; is the required reading distance different from the normal reading distance?
- Are pointers and other indicators simple and clear, and do they allow numbers to be read without obstruction?
- Are pointers mounted so that the visual parallax is minimized?
- Have great differences in brightness between displays, dials and surroundings been avoided?
- Is the legibility of the display impaired by reflection of light sources?
- Is the legibility of dials impaired by bright lights visible within the same area of vision?
- Has shadowing by pointers, edges, or controls been avoided?
- Does the chosen numerical progression minimize reading errors?

Grouping:

- Is it possible to group the different categories of dials and displays in different planes or surrounds of mounting?
- Can groups of displays of a specific category be divided by area or color patterning; are the layouts of displays so contrived as to highlight when the normal changes to abnormal?
- Are displays located near to their corresponding controls?
- Have the most important and/or the most frequently used instruments the best position in the normal visual field?
- Are the most frequently used instruments grouped together in one and in the same area of the visual field?

Positioning:

- Is the positioning of controls on similar machines or displays correctly standardized?
- Does reading of instruments require undue movement of head and/or body?
- Is the location and size of the display correct in regard to sitting posture, arm reach and viewing direction?

Accuracy and Speed:

- Is the accuracy of the instrument compatible with the required reading accuracy?
- Are reading errors minimized by the design of the instrument?
- Is the time lag between changes in the system and indication of it in the display minimized as far as possible?
- Are digital displays used for accurate reading and for adjusting to a predetermined value?
- Is a moving pointer display used for estimation of the degree of deviation and for adjusting deviation?
- Is the dial as simple as possible in regard to the desired information; can colored zones (e.g. red, amber, green) be used instead of numbers and markings when only check information is required?

- Is a satisfactory signal used to indicate the breakdown of a measuring instrument; and is the knock-on effect whereby several alarms may occur simultaneously avoided in favor of the most important?

Conformity:

- Does the grouping and arrangements of displays conform to the required reading sequence?
- Do pointers and other graphics point in the same direction when equipment is working correctly?
- Does the direction of the movement display have a similar meaning in different displays? Is the positioning of displays in different colors the same where these panels serve a similar purpose?

Controls:

- Is it possible to see immediately which situation is indicated by the position of the control?
- Does the controlling hand impede the reading of the dial?
- Is it possible to indicate the zero position by a stop?
- Is it possible to recognize controls or visual graphics by means of differences in shape, color or size?