Comprehensive Facility Checklist

Indicators of the Need for Ergonomic Engineering Evaluation

- ❑ Is a new production line or facility being considered?
- ❑ Is production efficiency too low?
- ❑ Is product quality low?
- ❑ Are absenteeism and incident rates unusually high?
- ❑ Are back injuries or musculoskeletal disorder of the hand occurring frequently?
- ❑ Are medical visits occurring too frequently?
- ❑ Is turnover at the facility too high?
- ❑ Is turnover for specific tasks especially high?
- ❑ Does it take too long to train workers for certain tasks?
- ❑ Do workers make frequent mistakes?
- ❑ Is there too much waste material resulting from production?
- ❑ Is there too much equipment damage?
- ❑ Are workers frequently away from their workstations?
- ❑ Are employees making subtle workplace changes?
- ❑ Are workstations used during more than one shift each day?
- ❑ Are your plant engineers familiar with ergonomic principles?
- ❑ Do you utilize an incentive pay system?
- ❑ Do the employees exercise their hands, fingers, or arms often to relieve muscle strain?

Indicators of the Need to Redesign Specific Tasks

- ❑ Are workers frequently required to lift and carry too much weight?
- ❑ Do workers have to push or pull objects that require large breakaway forces to get started (e.g., carts, boxes, rolls of material)?
- ❑ Do workers push or pull hand trucks or carts up or down inclines or ramps.
- ❑ Does a job require a worker to push, pull, lift, or lower objects while the body is bent, twisted, or stretched out?
- ❑ Do workers complain that they do not get enough breaks? Is the work pace not under the worker's control? Is this pace rapid?
- ❑ Does the task require the worker to repeat the same movement pattern at a high rate of speed?
- ❑ Does the worker's pulse rate exceed 120 beats per minute while doing the job?
- ❑ Is the job overly monotonous?
- ❑ Does the job involve the frequent use or manipulation of hand tools?
- ❑ Does the task require the continuous use of both hands and both feet in order to operate controls or manipulate the work object?

Comprehensive Facility Checklist—continued

Indicators of the Need to Redesign Specific Tasks—continued

- ❑ Does the job require the worker to raise the arms above shoulder height often or for extended periods of time?
- ❑ In order to perform the task, must the worker maintain the same posture (either sitting or standing) all the time?
- ❑ Does the job require the worker to keep track of a changing work situation mentally? Does this work situation require monitoring several machines?
- ❑ Must the operator process information at a rate that might exceed his or her capability?
- ❑ Must the operator sense and respond to information signals occurring simultaneously from different machines without sufficient time to do so?

Indicators of the Need to Redesign the Workplace

- ❑ Do workers sit on the front edge of their chairs, not using back supports?
- ❑ Do workers frequently add cushions and pads to their work chairs?
- ❑ Is it necessary for the worker to get into an unnatural or stretched position in order to see or reach gauges, controls, dials, materials, or part of the work object?
- ❑ Does the operator have to operate foot pedals or knew switches while standing?
- ❑ Must the work assume an unnatural or uncomfortable posture?
- ❑ If there are foot pedals, are they too small to allow the operator to alter the position of the foot?
- ❑ Is a raised footrest necessary?
- ❑ In order to perform the task, must workers hold their arms or hands up without armrests?
- ❑ Is it difficult to operate controls or observe dials?
- ❑ Are dials or controls poorly labeled?
- ❑ Is the equipment designed or placed in such a way that cleaning and maintenance activities are difficult?
- ❑ Does there seem to be too much clutter in the workplace?
- ❑ Must the worker perform his or her other job in a chair that cannot be adjusted?
- ❑ Is it possible to provide clamps or supports that will relieve the worker of the need to hold the work object while performing the task?

Comprehensive Facility Checklist—continued

Indicators that Special Considerations Need to be Make in the Work Environment

- ❑ Is there so much process noise that hearing loss could occur?
- ❑ Is there so much noise that it interferes with speech or audible signals of various kinds?
- ❑ Is special lighting necessary to perform the job?
- ❑ Is there a sufficient difference between the background color for the task and color codes on knobs, handles, and displays?
- ❑ Does the job require the worker to look from dark to light areas on a regular basis?
- ❑ Are there sources of direct or reflected glare in the work area?
- ❑ Do lights reflect off machinery, causing distancing flashes or stroboscopic effects?
- ❑ Is the air temperature too cold? Too hot?
- ❑ Is it too humid in the workplace?
- ❑ Are radiant heat sources placed near any workstations?
- ❑ Are there rapid changes in temperature or light in the work environment?
- ❑ Is there sufficient vibration in hand tools or process equipment for the worker to feel it in hands, arms, or whole body?
- ❑ Is there so much air contaminant in the process that it settles on displays, making them difficult to see?
- ❑ Is the job designed so that left-handed people can do it as easily as right-handed people?

Workstation Characteristics

- ❑ Can the worker keep horizontal stretches within the range or normal arm reach? Reach should not exceed 16-18 inches (40.6-45.7 centimeters)
- ❑ Is there adequate space at the workstation to perform the work comfortable?
- ❑ Is clearance space in the workstation adequate for handling and maintenance tasks?
- ❑ Is the workstation accessible to materials handling equipment?
- ❑ Does the positioning of equipment, controls, and work surface make it possible to maintain a comfortable posture?
- ❑ Is it possible for the worker to alternate sitting and standing when performing the task?
- ❑ If a chair is provided, is its design satisfactory (adequate back support, vertical adjustability, etc.)?
- ❑ Does the height of the work surface permit satisfactory arm posture? Correct hand height is 2-6 inches (5.1 to 15.2 centimeters) below elbow height for most jobs.
- ❑ If the work height is unsatisfactory, is it do to: machinery, work surfaces, or controls?
- ❑ Does the height of the work surface permit a comfortable view of the job being done?
- ❑ Is the height of the work surface adjustable?
- ❑ Is the texture of the work surface comfortable, taking into account hardness, elasticity, color, and smoothness?

Comprehensive Facility Checklist—continued

Workstation Characteristics—continued

- ❑ If pedals are used, are they positioned comfortably?
- ❑ Are pedals a comfortable size? If pedals are used, are they limited to two?
- ❑ Is the use of pedals required only on jobs performed while seated?
- ❑ Are hand controls designed to take into account the amount and types of force required to operate them?
- ❑ Are footrests and/or supports for hands, arms, and back available, if needed?
- ❑ If containers are used, are they placed conveniently?
- ❑ Are containers designed for easy maintenance and repair?
- ❑ Does the design of the equipment allow for easy access for maintenance and repair?
- ❑ Is the level of vibration low enough to avoid adverse affects on the worker?
- ❑ Is the workstation floor clear of clutter and obstructions that could create the risk of slips, trips, or falls?

Physical Demands

- ❑ Does the task require strenuous two-handed lifting?
- ❑ Does the task require lifting at too great a horizontal distance?
- ❑ Does the task require lifting more than once per minute?
- ❑ Does the task require lifting over too great a vertical distance?
- ❑ Does the task require strenuous one-handed lifting and reaching (such as too long a reach when feeding parts into a machine)?
- ❑ Are lifts awkward because they are near the floor, above the shoulders, or far from the body?
- ❑ Does the job require twisting while lifting?
- ❑ Must the worker handle difficult-to-grasp items? (Are the items difficult to reach? Is the handhold poor?)
- ❑ Does the job require continual manual handling of materials?
- ❑ Does the job require handling of oversized objects?
- ❑ Must force be exerted in an awkward position (e.g., to the side, overhead, or at extended reaches)?
- ❑ Is help for heavy lifting or exerting force unavailable?
- ❑ Does the job involve peak loads of muscular effort? How often do peak loads occur? How long do they last?
- ❑ Is the pace of material handling determined by a machine?
- ❑ Does the job involve static muscle loading (such as holding or carrying)?
- ❑ Is there a high level of hand tool vibration?
- ❑ Must the worker stand on a hard surface for 45% or more of the work shift?
- ❑ Is there frequent daily stair or ladder climbing?

Comprehensive Facility Checklist—continued

Perceptual Load

- ❑ Is the illumination unsatisfactory for the task?
- ❑ Is contrast poor between the workstation and its surroundings?
- ❑ Is glare present in the workstation?
- ❑ Are controls, instruments, and equipment placed where they are difficult to see (at a bad angle, to high, too low)?
- ❑ Are controls, instruments, and equipment poorly lit?
- ❑ If warning lights are present, are they located out of the center of the field of vision?
- ❑ If there are auditory signals, are they difficult to distinguish from one another?
- ❑ Are some auditory signals hard to hear?
- ❑ Does the noise level prevent verbal communication?
- ❑ Is there a need to tell the difference between parts by touch?
- ❑ Is it difficult to recognize controls and tools by touch and/or position?
- ❑ Where dials, instruments, or displays are in use, are they difficult to read?
- ❑ Are dials and instruments difficult to read quickly and accurately?
- ❑ Is the information on the displays difficult to read from the required reading distance?
- ❑ Is the workstation so poorly lit that there are great differences between brightness levels in panels, dials, and surroundings?
- ❑ Are dials grouped inconveniently?
- ❑ Is it difficult to differentiate among dials in a similar category because of location or lack of color coding?
- ❑ Are displays or dials not located near the corresponding control?
- ❑ Are the most important or most frequently used instruments not in the best position within the field of vision?
- ❑ Are the most frequently used instruments not grouped together in the same area of the field of vision?
- ❑ Are controls difficult to reach and operate?
- ❑ Are controls not standardized on similar equipment?
- ❑ Are there more controls than needed to perform the job?
- ❑ Does reading the instruments require a lot of head or body movement?
- ❑ Does the design of any instrument increase reading errors? Is the dial too complex for the level of information required?
- ❑ Are dials arranged out of the order in which they must be read?
- ❑ When all readings are correct, do the pointers in a group of dials point in different directions?
- ❑ Is it difficult to see immediately how a control is set?
- ❑ Does the worker's hand obstruct the dial when operating controls?

Comprehensive Facility Checklist—continued

Mental Load

- ❑ Is the task very complex?
- ❑ Is the job so complex that it takes a long time to train workers?
- ❑ Does the task require a great deal of accuracy?
- ❑ Does the worker have to evaluate data before taking action?
- ❑ Are standards of comparison lacking?
- ❑ Is it difficult to recognize controls by shape, size, labeling, or color? Is this a problem in normal use? Could it be a problem in an emergency?
- ❑ Is the information available about performance of the task ambiguous?
- ❑ Does the information come in faster than the worker is likely to be able to assimilate it?
- ❑ Must the worker keep track of several different types of information and signals at the same time?
- ❑ Does the job make heavy demands on short-term memory?
- ❑ Is the rate of information heavy enough to overload the worker?
- ❑ Do signals come in when the worker is concentrating on something else?
- ❑ Can signals from different sources occur simultaneously?
- ❑ Does the worker have to make a choice in response to a signal?
- ❑ If the worker must make a choice, does he or she know immediately if the choice was wrong? Must the job be performed within a specific time frame (e.g., when a job is paced by a machine)?
- ❑ Is insufficient time allowed in machine or process cycles for decisions to be made and actions to be taken?
- ❑ Is the job monotonous, repetitive, or unvarying?
- ❑ Does the job involve critical tasks with high accountability and little or not tolerance for error?
- ❑ Must too much information be handled in too short a time?

Work Environment

- ❑ Are there noise levels that interfere with conversation or performing the job?
- ❑ Is the noise level high enough to cause hearing loss?
- ❑ Is the temperature or humidity frequently uncomfortable enough to interfere with the job?
- ❑ Is air circulation too low?
- ❑ Is there too much air movement?
- ❑ Are workers exposed to rapid environmental changes?

Comprehensive Facility Checklist—continued

Work Environment—continued

- ❑ Are workers exposed to gaseous or vapor contaminants?
- ❑ Are suspended dust, mists, and other particulates present in the air?
- ❑ Are there wet locations that may produce shock hazards for work with electrically power equipment?
- ❑ Are floors uneven?
- ❑ Are floors slippery?
- ❑ Is housekeeping poor?
- ❑ Is lighting inadequate for the job?
- ❑ Does glare interfere with reading, inspecting, and the like?
- ❑ Are there hot surfaces that may cause burns?
- ❑ Are there conditions that should require personal protective clothing or equipment?