What You Need To Know About…

**Ergonomics – The Human Factor at Work**

Have worker needs been taken into consideration when setting up work tasks and equipment? Awareness of human factors and ‘job fit’ between people and their work tasks and equipment go a long way toward preventing soft tissue and repetitive strain injuries. In addition, the productivity benefits of sound ergonomic design are well-documented.

**What is ‘ergonomics’?**

Ergonomics is the science concerned with the way a person ‘fits’ their job or interacts with their work. Ergonomics includes consideration of individual physical characteristics, capabilities and limitations. The aim is to achieve the best match between tasks, equipment, information, environment and worker in order to minimise the risk of accidents or injuries on the job.

**What does an ergonomics assessment include?**

Ergonomists take into account a wide range of human considerations in order to design safe, effective and productive work stations, including:

- job task and its demands on the worker (physically, mentally, emotionally)
- equipment used (size, shape, weight, etc.) and appropriateness for the task
- task-related information and how it is presented, accessed, used and changed
- physical environment factors such as noise, temperature, humidity, vibration, lighting, etc.
- culture and social environment factors such as teamwork, proximity of co-workers, management attitudes and support, etc.
- worker physical aspects such as height, weight, fitness, strength, sensory acuity (ie, vision, smell, hearing, touch) and potential for stress and strain on muscles, joints and nerves
- psychological factors such as mental abilities, personality, knowledge, work experience.

**What does ergonomics contribute to health and safety?**

Optimising the workplace ‘fit’ for employees by applying ergonomic principles reduces the potential for injuries and accidents, and productivity is improved by optimising work task performance.

Here’s an example - when designing a control panel, an ergonomist would take into account the following factors:

- Switches and buttons should be located where they are not likely to be accidentally turned on or off, especially where an accident could result.
- signals and controls should be colour-coded appropriately – most people associate ‘red’ with stop or a warning and green with ‘go’. A warning light coloured green might be inadvertently ignored or overlooked.
- information overload could overwhelm or confuse the operator, causing them to panic or make a mistake that could have catastrophic effects.
• panel layout should be designed relative to how controls are operated, positioning the most frequently used buttons within easy reach so the worker doesn’t need to repeatedly stretch, stoop or hunch over.

Where should ergonomics principles be applied?

Ergonomics is usually identified as resolving physical problems in the workplace. But it is not limited to factory workstations – the same issues arise with office workstations and many relatively sedentary roles.

Since computers form a very big part of most office-based roles these days, every workstation should be assessed and set up according to sound ergonomic principles. This means ensuring that computer display unit and computer mouse are correctly positioned to prevent poor posture and avoid eye-straining glare, desk and keyboard heights are set up appropriately, with chair height adjusted for the individual and footrest provided where required, in order to avoid strain. Regular breaks or changes of activity should also be considered.

How do ergonomics principles apply to manual handling tasks?

Where workers carry out manual handling tasks, it’s important to consider the individual’s physical size and strength, as well as the characteristics of the load and the task itself. Heavy or bulky loads may place unreasonable demands on the worker, making it difficult to grip the load properly, and possibly obstructing their view when carrying objects, increasing the risk of slips, trips, falls or other accidents.

Where possible, try to arrange manual handling tasks so loads don’t have to be lifted from the floor or above the shoulders. Tasks involving frequent repetitive lifting, bending or twisting carry a high risk of repetitive strain injury, back pain, slips, trips or falls. Also watch for situations where work is carried out on sloping, uneven or slippery surfaces.

What are some psychological ergonomics factors to consider?

Work-related stress has been identified (HSE Amendment Act 2002) as a workplace hazard that must be managed, so work arrangements should take this into account. Employees may experience work-related stress when work demands are too high or too low, and intermittent extremes can also create stress, especially if the employee feels they have little or no control over the work flow. Other stress factors impacting on workers include their ability to have a say in how their work is organised, the extent of support from co-workers and management, and whether performance expectations are clearly communicated and free of conflict (e.g., productivity vs quality vs safety) and ambiguity.

Other ways to avoid worker stress, tiredness, exhaustion or illness include effective scheduling of shifts, allowing sufficient recovery time between shifts, considering workers’ domestic responsibilities when scheduling work, and avoiding excessive overtime.
How are ergonomic problems identified?

It makes sense to approach ergonomic assessment from a number of angles, ranging from quantitative risk assessments to general observations and interviews. Here are some examples:

- discuss work tasks and requirements with employees doing the work.
- audit or review work system arrangements by asking questions about any pain or discomfort on the job, characteristics of equipment used, frequency of errors, etc.
- review error and injury statistics to identify any trends.
- review attendance records and staff turnover levels to identify any issues of workplace dissatisfaction.

How should ergonomic problems be addressed?

First look for all likely causes and consider potential solutions. Sometimes only a small change is needed to correct the problem – it need not be an expensive solution. Consult employees and get their input, and make sure they have a chance to properly evaluate any changes.

If you can’t find a straightforward solution, or the problem is complex, it’s best to consult a qualified ergonomist.

For further information on ergonomics:

For further resources and information, refer to these websites:

- OSH Department of Labour publications - www.osh.govt.nz
- Health & Safety Executive publications on office safety & ergonomics - http://www.hse.gov.uk/pubns/officedex.htm