

## GLOSSARY

### **Action Limit (AL)**

A term from the 1981 WPG that denotes the weight limit that nearly all workers can perform safely. The term has been replaced in the 1991 equation with the term Recommended Weight Limit (see RWL).

### **Angle of Asymmetry (A)**

The angle between the Asymmetric Line and the Sagittal Line of the worker's body, as defined by the worker's neutral body position; measure at the origin and destination of lift and use to compute the Asymmetric Multiplier (see Asymmetric Line, Asymmetric Multiplier, and Neutral body position).

### **Asymmetric Multiplier (AM)**

A reduction coefficient defined as  $(1 - (.0032A))$ , has a maximum value of 1.0 when the load is lifted directly in front of the body and decreases linearly as the Angle of Asymmetry (A) increases.

### **Asymmetry Line**

The auxiliary line that connects the mid-point of the line drawn between the inner ankle bones and the point projected down to the floor directly below the center of the hand grasps.

### **Composite Lifting Index (CLI)**

The term that denotes the overall lifting index for a multi-task manual lifting job.

### **Coupling Classification**

The three-tiered classification of the quality of the coupling between the worker's hands and the object (either good, fair, or poor); used in the Coupling Multiplier (see CM).

### **Coupling Multiplier (CM)**

A reduction coefficient based on the Coupling Classification and Vertical Location of the lift (values found in Table 7).

**Distance Variable (D)**

The vertical travel distance of the hands between the origin and destination of the lift measured in inches or centimeters; used in the Distance Multiplier (see DM).

**Distance Multiplier (DM)**

A reduction coefficient defined as  $(.82 + (1.8/D))$ , for D measured in inches, and  $(.82 + (4.5/D))$ , for D measured in centimeters.

**Duration of Lifting**

The three-tiered classification (either short, moderate, or long) of lifting duration specified by the distribution of work-time and recovery-time (work pattern).

**Frequency of Lifting (F)**

The average number of lifts per minute over a 15 minute period; used in the Frequency Multiplier (see FM)

**Frequency Multiplier (FM)**

A reduction coefficient that depends upon the Frequency of Lifting (F), the Vertical Location (V) at the origin, and the Duration of Lifting (values found in Table 5).

**Frequency-Independent Lifting Index (FILI)**

A term defined as  $(L)/(FIRWL)$ , identifies individual tasks with potential strength problems, values exceeding 1.0 suggest that ergonomic changes may be needed to decrease the strength demands.

**Frequency-Independent Recommended Weight Limits (FIRWL)**

A value used in a multi-task assessment; product of all the reduction coefficients and the LC, holding FM equal to unity; reflects the overall strength demands for a single repetition of that task; used in Frequency-Independent Lifting Index (see FILI).

**Horizontal Location (H)**

The horizontal distance between the mid-point of the hand grasps projected down to the floor and the mid-point of the line between the inner ankle bones; used in the Horizontal Multiplier (see HM).

**Horizontal Multiplier (HM)**

A reduction coefficient defined as  $10/H$ , for H measured in inches, and  $25/H$ , for H measured in centimeters.

**Lifting Index (LI)**

A term defined as  $L/RWL$ ; generally relates the level of physical stress associated with a particular manual lifting task to the number of workers who should be able to perform the task (see Load Weight). A value of 1.0 or more denotes that the task is hazardous for some fraction of the population.

**Lifting Task**

A term denoting the act of manually grasping an object of definable size and mass with two hands, and vertically moving the object without mechanical assistance.

**Load Constant (LC)**

A constant term in the RWL equation defined as a fixed weight of 23 kg or 51 lb; generally considered the maximum load nearly all healthy workers should be able to lift under optimal conditions (i.e. all the reduction coefficients are unity).

**Load Weight (L)**

A term defining the weight of the object to be lifted, in pounds or Newtons, including the container; used in the Lifting Index (see LI)

**Long-duration**

A term defining lifting tasks that have a duration of between two and eight hours with standard industrial rest allowances (e.g., morning, lunch, and afternoon rest breaks).

**Moderate-duration**

A term defining lifting tasks that have a duration of between one and two hours, followed by a recovery period of at least 0.3 times the work time [i.e., at least a 0.3 recovery-time to work-time ratio (RT/WT)].

**Poor Coupling**

A term defining a poor hand-to-object coupling that generally requires higher maximum grasp forces and thus specifies a decreased acceptable weight for lifting.

**Recommended Weight Limit (RWL)**

The product of the lifting equation; the load that nearly all healthy workers could perform over a substantial period of time for a specific set of task conditions.

**Sagittal line**

The line passing through the mid-point between the inner ankle bones and lying in the sagittal plane, as defined by the neutral body position

**Short-duration**

A term defining lifting tasks that have a work duration of one hour or less, followed by a recovery time equal to 1.2 times the work time [i.e., at least a 1.2 recovery-time to work-time ratio (RT/WT)].

**Significant Control**

A term defining a condition requiring "precision placement" of the load at the destination of the lift (e.g.: 1. the worker has to re-grasp the load near the destination of the lift, 2. the worker has to momentarily hold the object at the destination, or 3. the worker has to position or guide the load at the destination).

**Single-Task lifting Index (STLI)**

A term defined as  $(L)/(STRWL)$ ; identifies individual tasks with potentially excessive physical demands and can prioritize the individual tasks according to the magnitude of their physical stress;

values exceeding 1.0, suggest that ergonomic changes may be needed to decrease the overall physical demands of the task.

**Single-Task Recommended Weight Limit (STRWL)**

A value used in a multi-task assessment; the product of FIRWL and the appropriate FM; reflects the overall demands of that task, assuming it was the only task being performed. May be used to help determine if an individual task represents excessive physical demand; used in Single-Task Lifting Index (see STLI).

**Vertical Location (V)**

The distance of the hands above the floor measured at the origin and destination of the lift in inches or centimeters; used in the Vertical Multiplier (see VM).

**Vertical Multiplier (VM)**

A reduction coefficient defined as  $(1 - (.0075 |V - 30|))$ , for V measured in inches, and  $(1 - (.003 |V - 75|))$ , for V measured in centimeters.

**Width (W)**

The width of the container in the sagittal plane.

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