TABLE 4
Lifting and Carrying Multipliers

Lifting or Carrying Situation	*Multiplier*
Age – For personnel over 50 years old	0.80
Asymmetrical lifting – When a worker must twist the torso 45° or more	0.70
Asian male	0.80
Asian female	0.85
Handholds – In the absence of handles or with poor handholds	0.90
Lifting or carrying frequency – If the frequency of lift or carry exceeds one in 5 minutes or 20 lifts or carries per 8 hours, the weight limits should be reduced by the factor (8.33 × *LF*)/100, where *LF* is the lift frequency in lifts per minute. For example, if the lift frequency is 6 lifts per minute, then the maximum permissible weight is reduced by (8.33 × 6)/100, which equates to .5	(8.33 × *LF*)/100
Lifting or carrying load size	
– If the depth of the object exceeds 61 cm (24 in)	0.66
– If the depth of the object exceeds 91 cm (36 in)	0.50
– If the depth of the object exceeds 122 cm (48 in)	0.33
Limited Headroom – Where personnel must remain "bent" at the waist	0.65
Obstacles – If a lower protruding shelf or other obstacle limits the lifter's approach to the desired surface	0.66
Temperature – For temperatures greater than 32°C (90°F)	0.88

Reducing or Eliminating Manual Materials Handling. As previously mentioned in, "Keys to Acceptable Materials Handling and Lifting," where possible, manual materials handling tasks may be reduced or eliminated by applying any or all of the following strategies:

- Avoid manual materials handling altogether, whenever possible
- Redesign the load
- Redesign the lifting/carrying task
- Redesign the working environment
- Introduce assisted lifting devices.

Assisted lifting aids include devices such as cranes, hoists, counter-balancing mechanisms, trolleys, mono-rails, come-alongs, padeyes, A-frames, etc. Regardless of the choice, in order to use assisted lifting devices, sufficient space is needed either to permanently install a new lifting device or to temporarily place removable equipment in addition to space needed for the load, its manipulation, and personnel assisting with the materials handling task.

Materials Handling Planning for Assisted Lifts

In cases where large (e.g., 40 kg (90 lbs) or greater) loads are anticipated, it is best if a materials handling study is undertaken during the design stage of a vessel or offshore installation in order to determine the following: