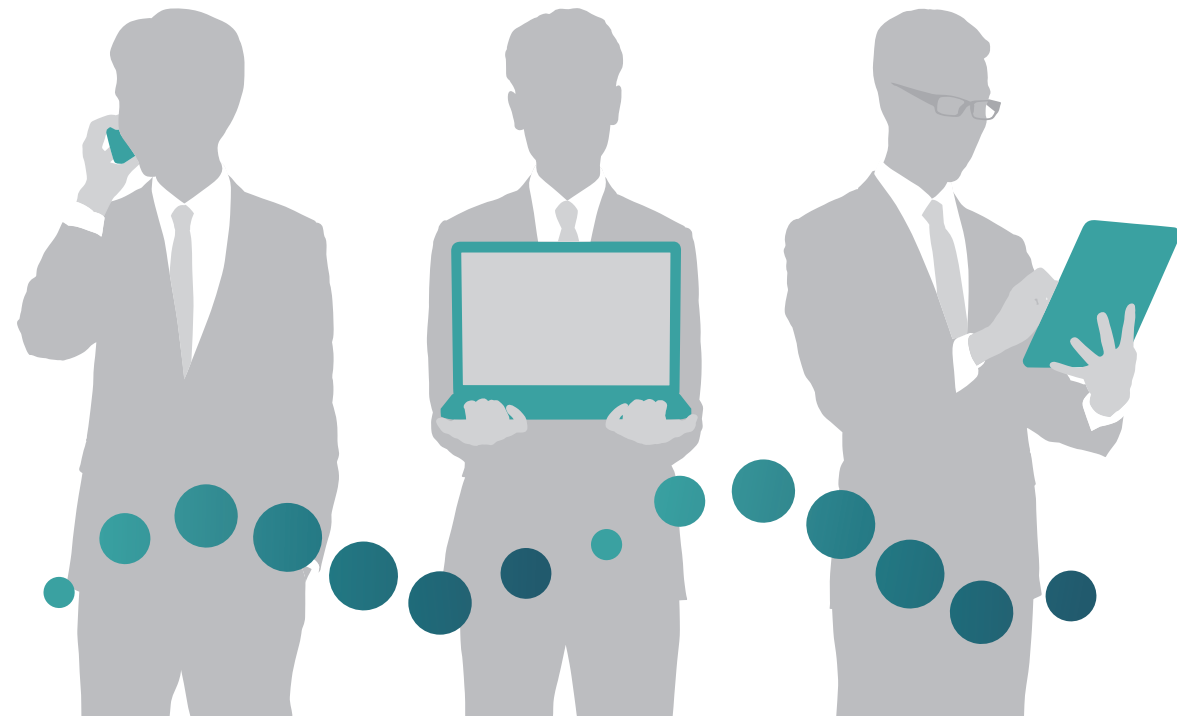




**Hand held Technology Use and Arrangement
(For smart phones and tablet computers)**

The use of hand held technology has revolutionized communications and many other aspects of life. However, if overused or misused, hand held technology can present significant social and physical challenges. The challenge with HHT is for people to take control of the technology, versus allowing the technology to take precedence.

- Hand held technology (HHT) should be used in a portrait orientation to reduce thumb stress
- Alternate fingers (index) should be used to operate HHT
- HHT should be propped up instead of being held in the hand(s)
- The ears, shoulders and hips should be lined up so the shoulders are not rolled forward
- The duration of time spent working on HHT should be limited particularly for children and adolescents
- For extended use of HHT, wireless input (keyboard/mouse) devices should be available and used
- HHT should be stored at bedtime to reduce stimulation
- HHT should never be used while driving
- Wired or wireless headsets should be used to avoid awkward arm postures while using HHT
- Access to and use of HHT should be limited for young children and teens to avoid possible issues with physical development



**Computer Workstations
and Hand Held
Technology
BEST PRACTICES**

Seated Arrangement

Good seated posture is the cornerstone of a comfortable seated working arrangement. If a person is unable to sit comfortably, then it will be difficult to achieve high levels of performance, productivity and quality work. Often people do not know how to adjust their chairs. A few minutes spent

learning about the various adjustments of a particular chair can significantly impact the effectiveness of nearly any chair. The following guidelines provide best-practice details to get the most out of a chair.

Upper back reclined with shoulders relaxed and elbows at sides.

Backrest of the chair supports curve in the lower back.

Hips as far back on the chair as possible.

Adjustable seat for optimal height.



Top of monitor at eye level or slightly below.

Arms relaxed at sides with upper arm and lower arm forming a 90° angle. Wrists straight with fingers relaxed.

Lower legs at a 90° > 110° angle to thighs with adequate legroom.

Feet firmly on the floor or a footrest.

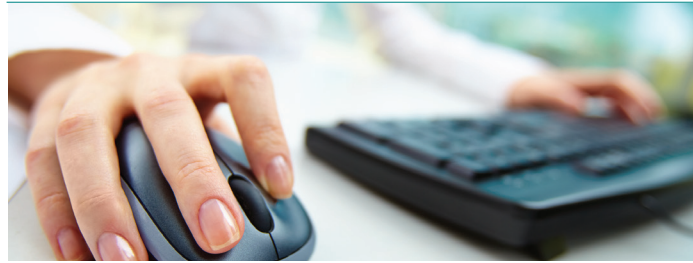


Operations should be managed to achieve compliance with the California Cal-OSHA Ergonomics Standard and the California Suitable Seating Standards (for those operations within the State of California.)

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- The keyboard and mouse should be on the same surface/plane
- The keyboard and mouse should be operated without reaching
- The shoulders should be relaxed and elbows are about 90-degrees
- The keyboard and mouse should be at about elbow height
- The arms should not contact squared edges on the work surface
- The mouse should be operated with a straight (no wrinkles) wrist posture
- The keyboard should be operated with straight (no wrinkles) wrist postures
- A docking station with full-sized keyboard and mouse should be used for laptop computers

Keyboard and Mouse Arrangement

Good upper extremity and spine posture correspond directly to the arrangement of the keyboard and mouse. If these items are too far away, then the arms are extended, which affects the shoulders and both the lower and upper spine. In addition, the technique with which the keyboard and mouse are operated directly affect the hands and wrists.



- The top of the monitor(s) should be set at eye level (for multi-focal lenses wearers, the monitor(s) should be lower)
- The primary monitor should be on the side of the stronger eye
- Monitor distance and font size should allow for comfortable viewing
- A stand to raise the screen and docking station should be used for laptop computers
- The eyes should be rested periodically, and the focus changed to distant objects

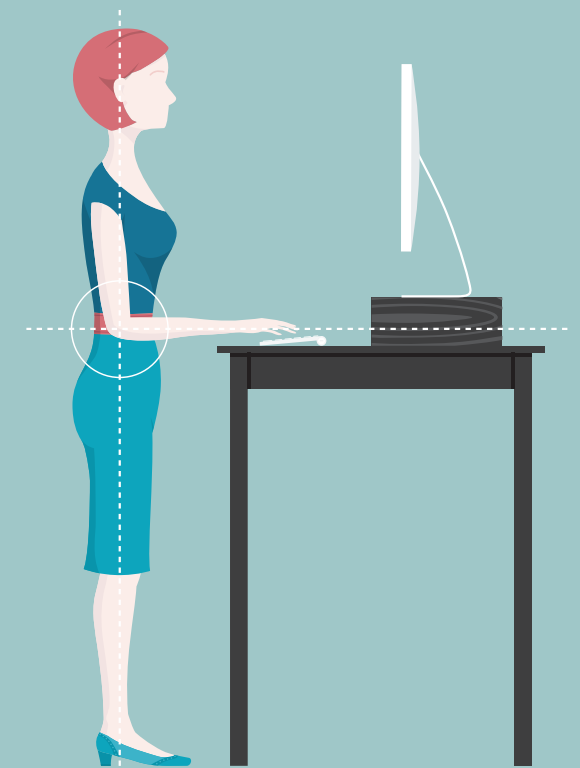
Monitor Arrangement

Properly positioning the monitor(s) will impact the neck and eyes. People with bifocal or progressive lenses often position their monitors too high, which results in awkward neck postures and potential discomfort. Staring at the screen at a certain distance can also fatigue the eyes.

Standing Desk Arrangement

The advent of sit/stand and standing desk arrangements has revolutionized the office workspace. Just as with a seated posture, good standing posture is critical to optimizing the quality of work and employee performance and productivity.

- The monitor, keyboard and mouse should be positioned while the person is in a seated posture
- The optimal desk height for standing should be identified with assistance
- Sit/Stand desks should range from 22.5 to 48.6 inches in height
- Presets should be available to encourage the use of sit/stand options
- It should be possible to frequently alternate between seated and standing postures
- The top of the monitor screen should about eye level if not wearing bifocal/progressive lenses
- The keyboard and mouse should be at about elbow height
- Standing should occur in five to ten minute intervals, up to 15 to 20 minutes per hour (or more over time) with frequent changes between sitting and standing



Workstation and Equipment Layout and Design Considerations

The layout of workstations in relation to overhead lights and outside windows can play a significant role in employee quality, performance and productivity. Good workstation design demands planning that optimally starts in the design phase of a project.

- Workstation monitors should not be placed directly under light fixtures
- Monitors should be positioned at right angles to outside windows
- Lighting should be within adequate ranges for comfortable working
- Chairs should provide full adjustment options (lumbar, seat pan depth, height, armrests if provided))
- Chairs should be procured with extended parts & labor warranties
- Chairs should be designed for extended/daily use
- Chairs should meet ANSI/BIFMA/HFES design standards
- Training should be provided (and documented) in the correct use and arrangement of workstation equipment

Standing should occur in five to ten minute intervals, up to 15 to 20 minutes per hour (or more over time) with frequent changes between sitting and standing.