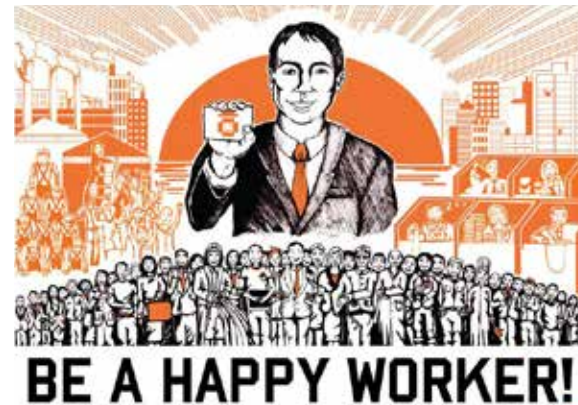


Ergonomics in Control Room Design

Control room designer is frequently faced with design of interior spaces must incorporate a visual communication system of one type or another. The system will inevitably include display material to be viewed from a sitting or a standing position. The viewing time may vary from a few moments to situations where the viewing task may well be a full-time activity. The display material may be in the form of posters, pin-up material, monitors, film clip or any back-lit. To design the control room properly, the designer must be responsive to both the anthropometric and visual considerations involved. Below mentioned are few anthropometric dimension in relation to various tasks which are relevant to design of control rooms. Products and solutions should adhere to these guidelines to ensure operator comfort and efficiency.



Ergonomic guidelines for better operator performance :

1. Lower the monitor height, keep items and screens to be viewed at similar distances, increase task lighting on printed material, increase text size, and change tasks periodically. The average resting point of convergence is 35" at 30 degrees down angle, 45" at horizontal, and 53" at 30 degrees up angle, hence lower monitor heights means lesser strain.

2. The vertical and horizontal eye and head movement diagram demonstrate best viewing angles for an operator. Ideally, there is no head movement and minimal eye movement for the most important and most common tasks.

3. Displays that are used for close image inspection should be positioned directly in front of the operator, with sizes typically ranging from 15" to 19".

4. Displays outside the workstation and positioned at a greater distance or behind the console should range in sizes from 19" to 42" or larger.

5. When using three tier monitors, the displays should fall within the combined head and eye movement in the vertical plane. (Fig. 1)

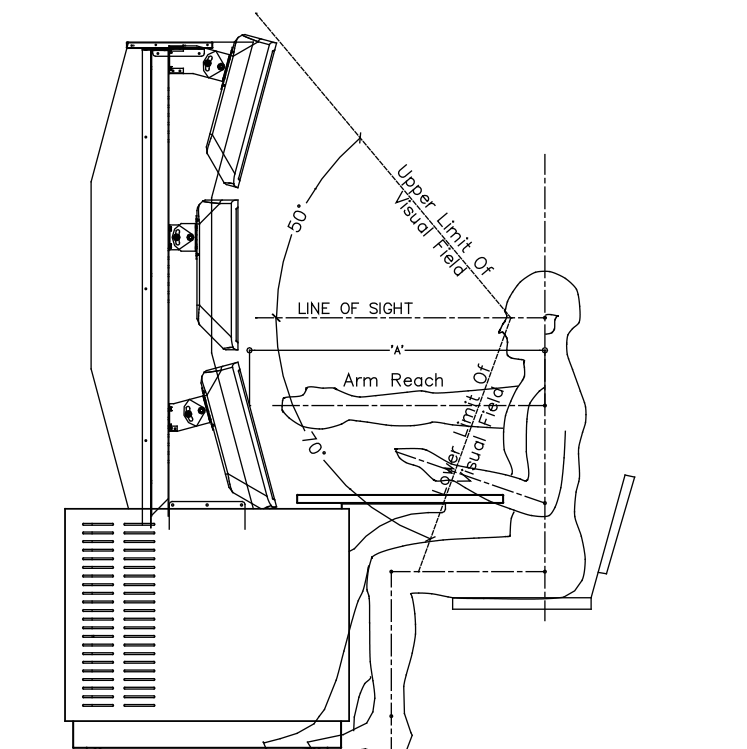
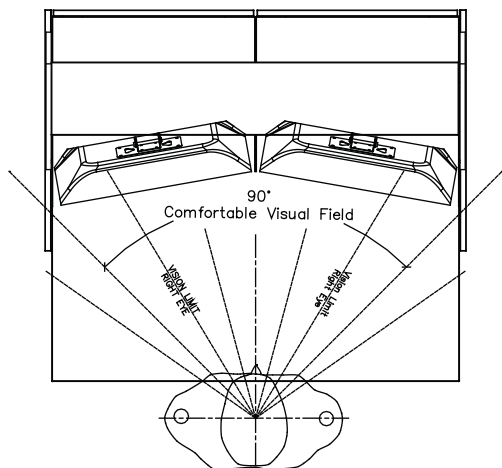


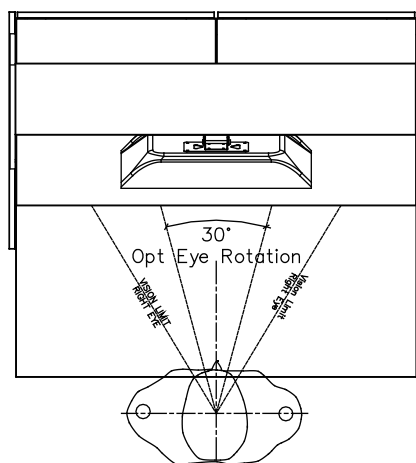
Fig.1

6. To minimize head and extreme eye movement, the primary images to be viewed, whether displayed locally or on a distant video wall, should be centered within a 30 degree cone. (Fig. 2)

7. While using two or more displays, the displays should fall within the comfortable range of combined eye and head movement in the horizontal plane. (Fig3)



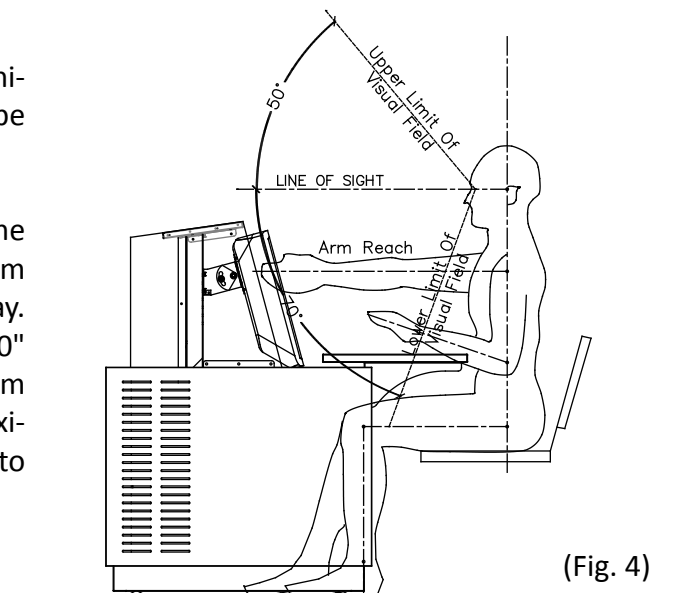
(Fig. 3)



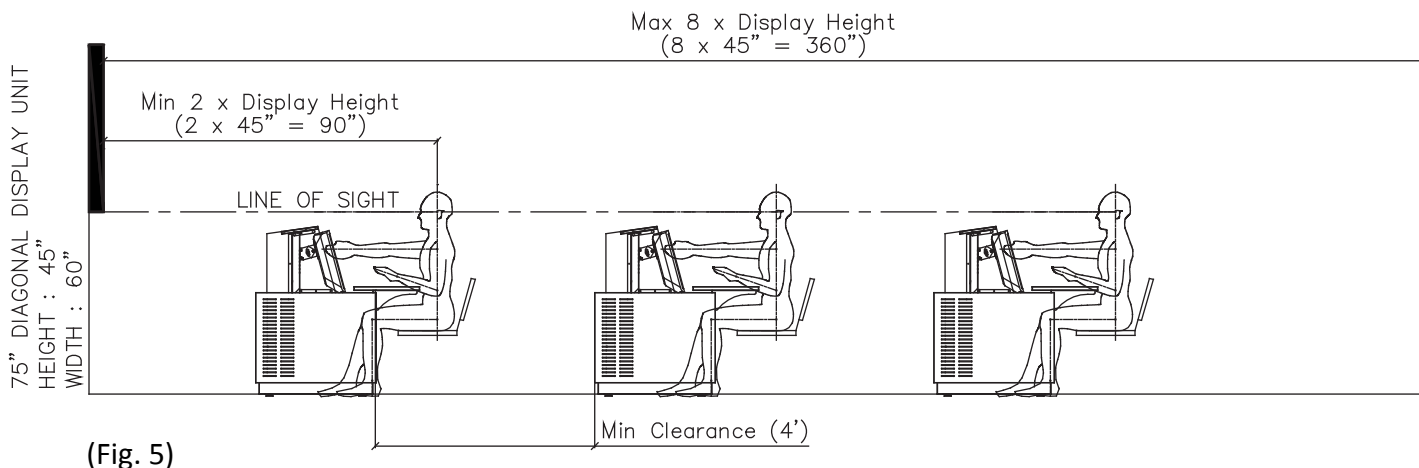
(Fig. 2)

8. Touch operated consoles to be placed at a minimum of 28", so that the screen can comfortable be touched from a relaxed sitting position. (Fig. 4)

9. To calculate the minimum distance, multiply the width of the display times 1.87 and maximum distance will be 8 times height of the display. Thus, a 75" diagonal display will have a width of 60" and height of 45", meaning that the minimum distance from the display should be 90" and maximum distance will be 360", hence can cover up to three rows. (Fig.5)



(Fig. 4)



(Fig. 5)