

Table top interfaces

An Industrial Designer's perspective

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Talk Structure

Industrial Design

a description/definition

Designing a tabletop interface
product for an office
environment

(Humans, society and the shape of things)

What is Industrial Design?

Industrial Designers are responsible for the form of manufactured products.

Humanization of technology
(user centred design)

What is Industrial Design?

Industrial Design

The interaction between
people and things

(in the broadest sense)

Engineering

The interaction between
things and things

Industrial Design Agenda

Human

Social / cultural

Ergonomics (usability)

Cognitive

Physical

Technical

Materials

Technology ESD



Aesthetics

Industrial Design Agenda

Human

Social / cultural

Ergonomics (usability)

Cognitive

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Technical

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Technology ESD



Aesthetics

Industrial Design Approach

“Always design a thing by considering it in the next context, a chair in a room, a room in a house....” Eliel Saarien

Talk about contexts

Social

Physical ergonomic

Social - Cultural

A short history of Office Furniture

Good to know where it all started

Also shows how cultural and social forces shape objects,

(this is what designers do best)

Social - Cultural

A short history of Office Furniture

3 shifts

1910 Efficiency

1950 Differentiation & Hierarchy

1990 Collaboration



Wooton Patent Cabinet Office Secretary

Social - Cultural

1910 - Efficiency

Taylorism

(from manufacturing)

Desk a tool for efficiency

(flat surface, minimal drawers)

No longer private

(need for supervision)

Cleanliness

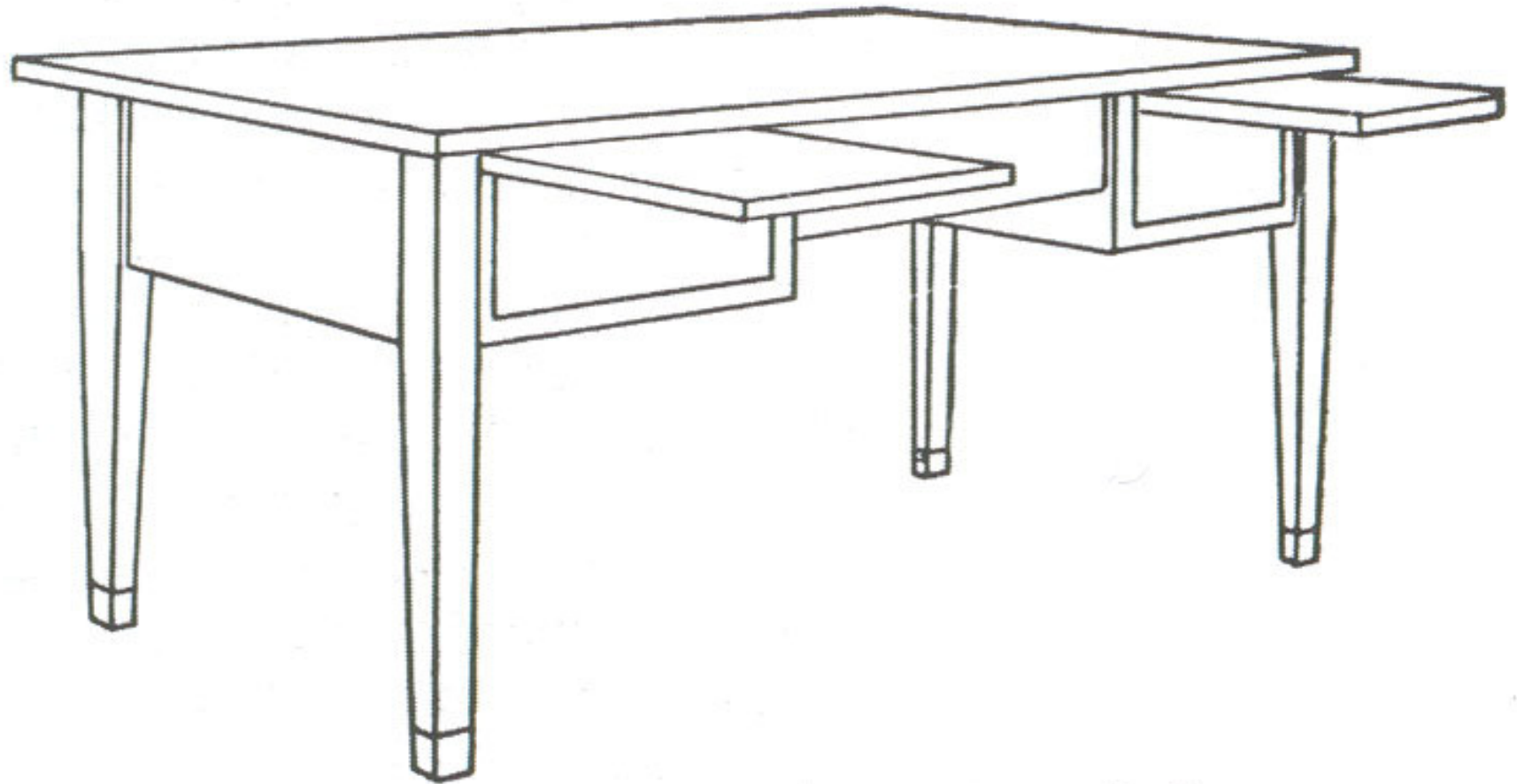


Figure 16. The Modern Efficiency Desk

This desk is little more than a table with three shallow drawers. This construction makes it impossible for clerks to stow away and so overlook papers.

Steelcase - Modern Efficiency Desk 1915



Social - Cultural

1950 – Differentiation

Office not a factory

“...identify the machine as an appliance for the office rather than the factory”

L. Bruce Archer ‘Honest Styling’
Design no 108 1957

Social - Cultural

1950 – Hierarchy

Human relations become
paramount

Birth of the open plan office

(Also more efficient 'natural'
workflows)



Bürolandschaft or 'office-landscape'.



Social - Cultural

1990 – Collaboration

Information technology makes works non-geographic

Office designed to facilitate face time and team operation



Beukema, Corpuz, Reddig & Thorp –
Idea Factory Installation 1998



Beukema, Corpuz, Reddig & Thorp –
Idea Factory Installation 1998

Social - Cultural

What does this mean for design?

What are the organisational aims and objectives the object must serve?

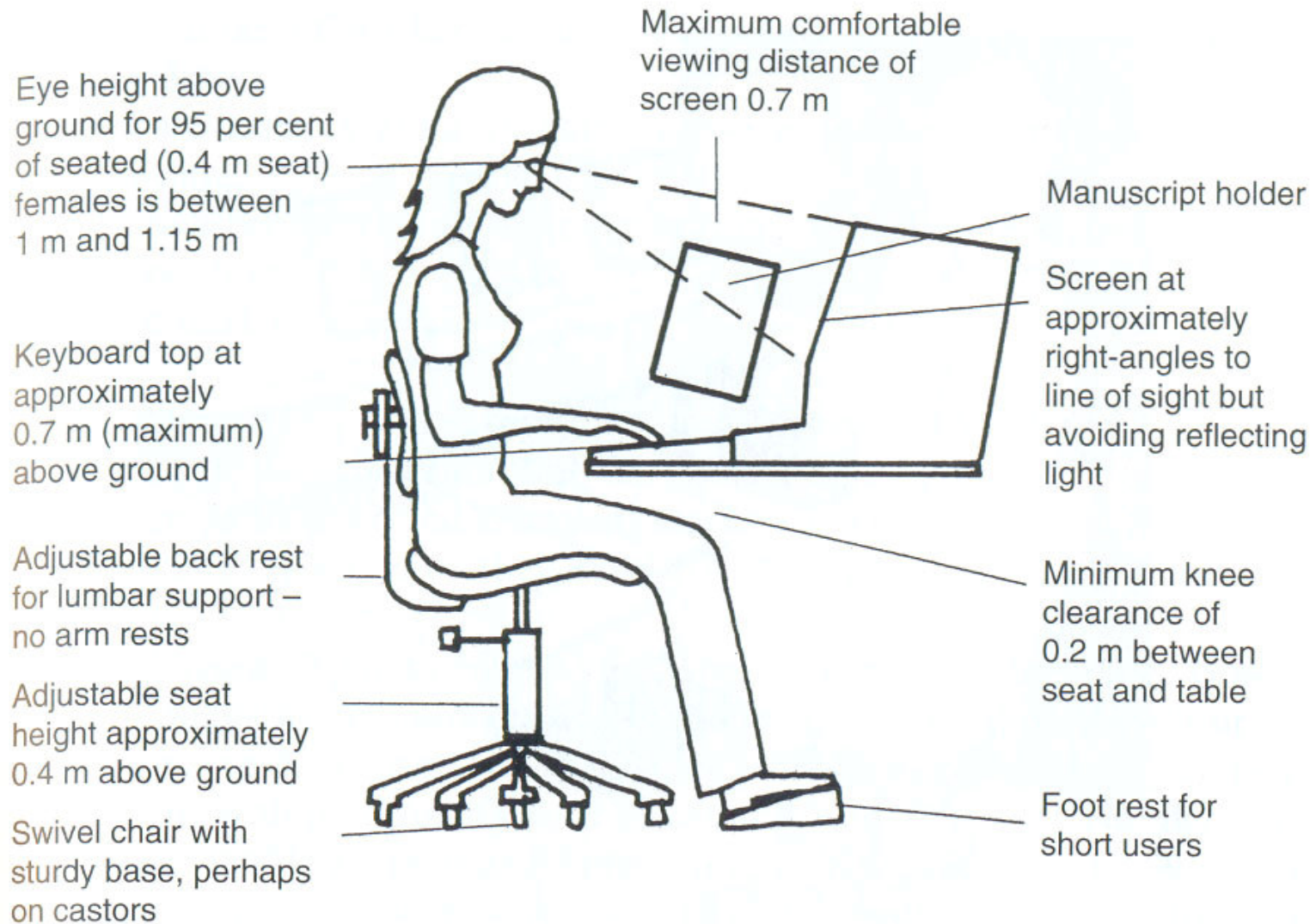
What are the 'messages' encoded in the design?

Ergonomics - Physical

Design to fit the body

Dreyfuss charts just the start and limited

Difficult to reduce to a cookbook of recommended dimensions.



Paradigm of ergonomics of human computer interaction

Ergonomics - Physical

Context Reliant

What are the tasks?

(drawing, pointing, writing.....)

Who is doing it?

(body size)

How long for?

Ergonomics - Physical

How long for?

Modern office erg problems stem from long durations working at a task

Attain and maintain good working postures

Ergonomics - Physical

What, Who How?

Determine the best approach to size, height of the interface.

The nature of the task....

Is it a desk? A coffee table with stools? A Bar to stand at?

Ergonomics - Physical

Important physical parameters

Seating

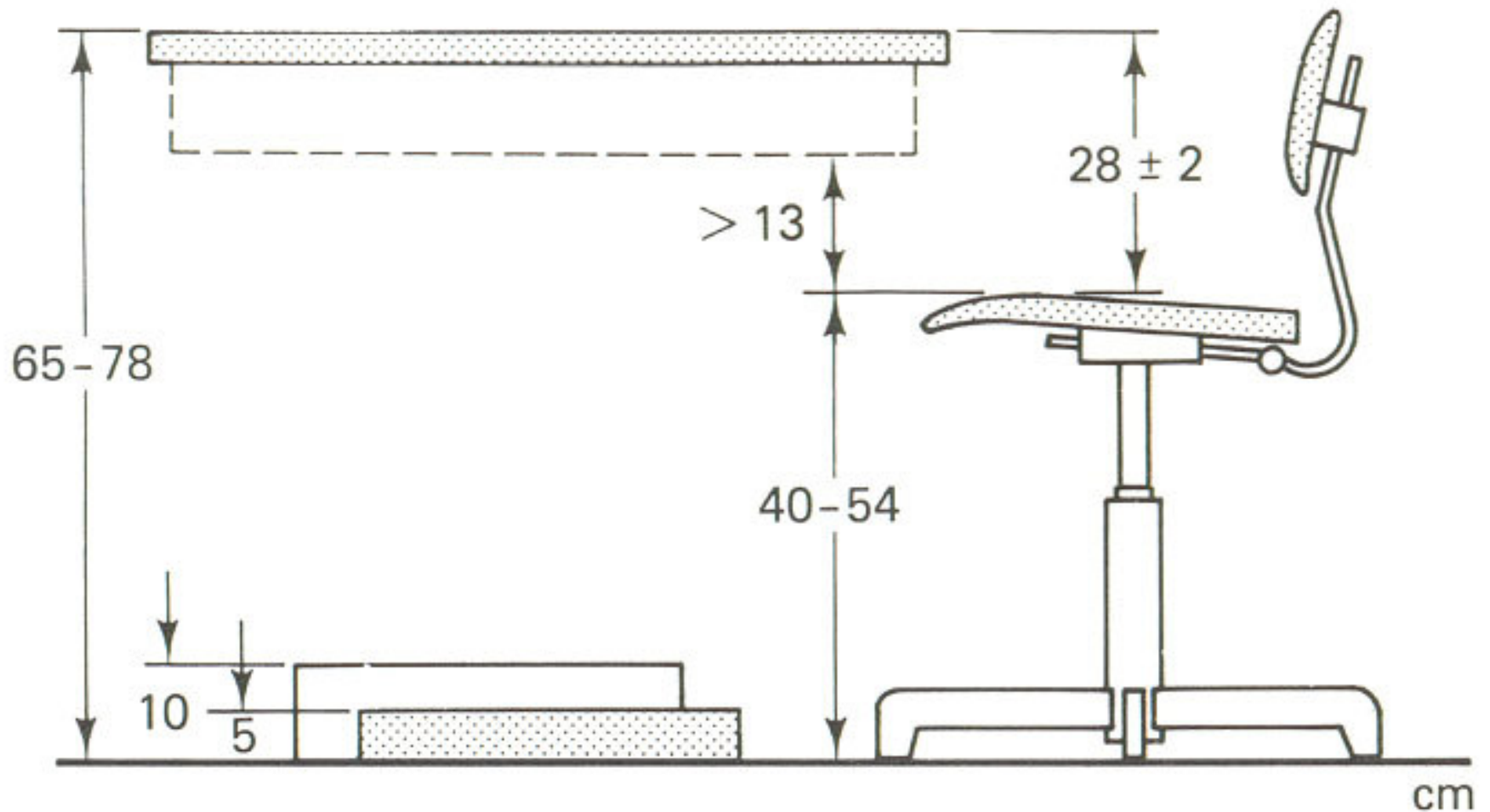
Posture & Reach

Ergonomics - Physical

Seating

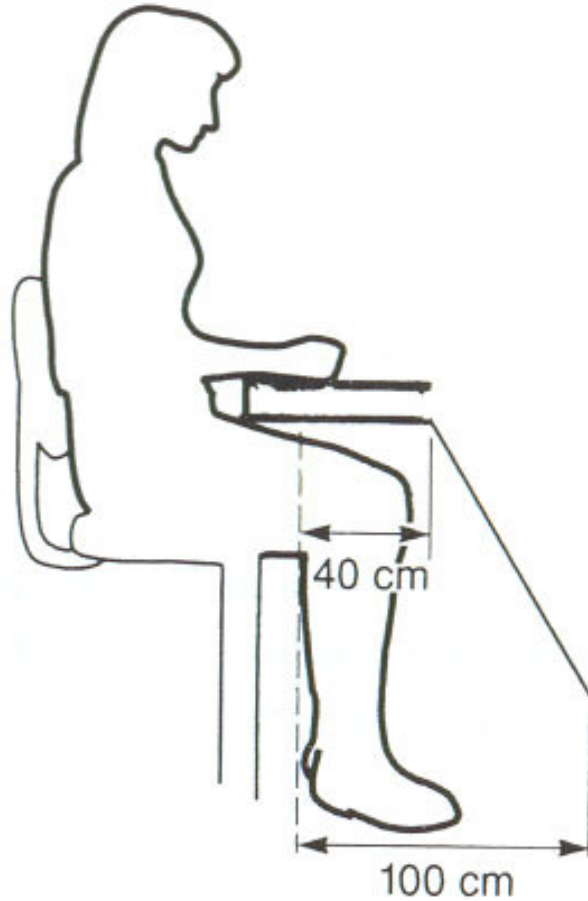
Relation of work surface to seat important.

Work surface, seat and footrest are a system and must be compatible.



Ivergard, Toni (1989) *Handbook of Control Room Design & Ergonomics*
Taylor & Francis Pg 118

Workplace for Reading & Writing



Dul, J & Weedermeester, B (1993)
Ergonomics for Beginners Taylor &
Francis Pg 20



Dul, J & Weedermeester, B (1993)
Ergonomics for Beginners Taylor &
Francis Pg 24

Workplace for Sitting & Sitting/Standing

Ergonomics - Physical

Posture & Reach

Working at horizontal surfaces for long periods

Neck and trunk flex required to see and reach out to extremities of the surface

Ergonomics - Physical

Posture & Reach

Avoid bending forward and twisting the trunk.

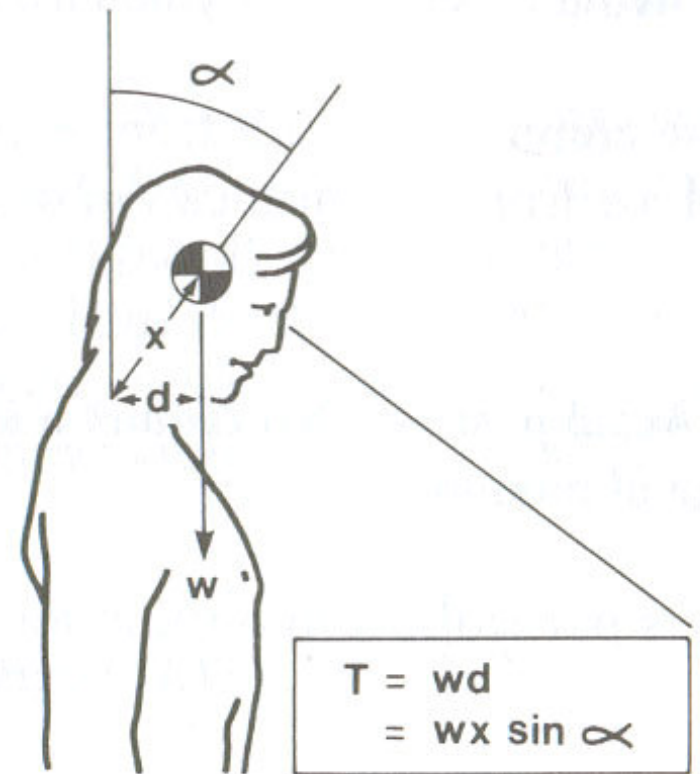
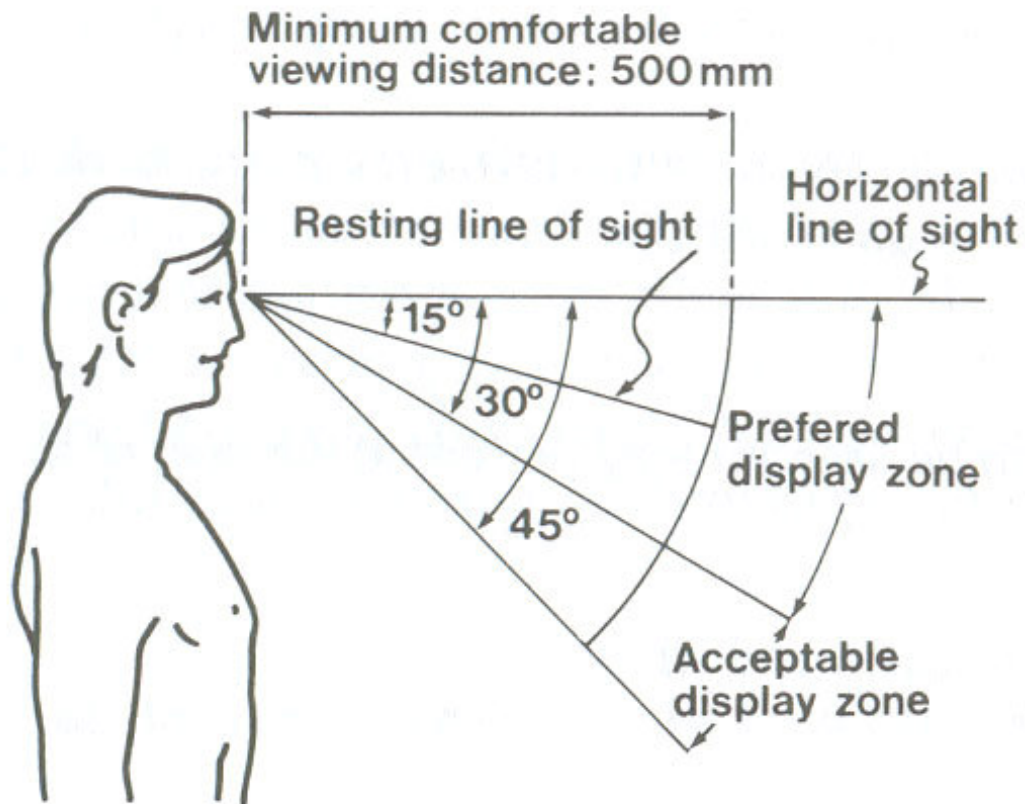
appropriate viewing angle
excessive reach

Ergonomics - Physical

Viewing angle

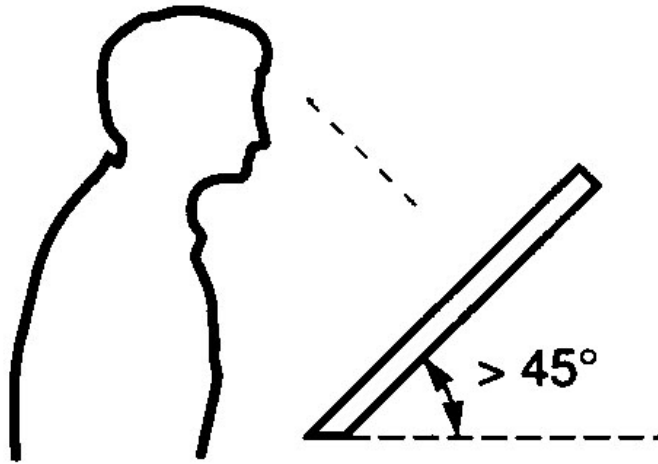
Location of visual displays determine posture of head and neck

Once display below eyes line of sight neck to flexes, straining neck muscles

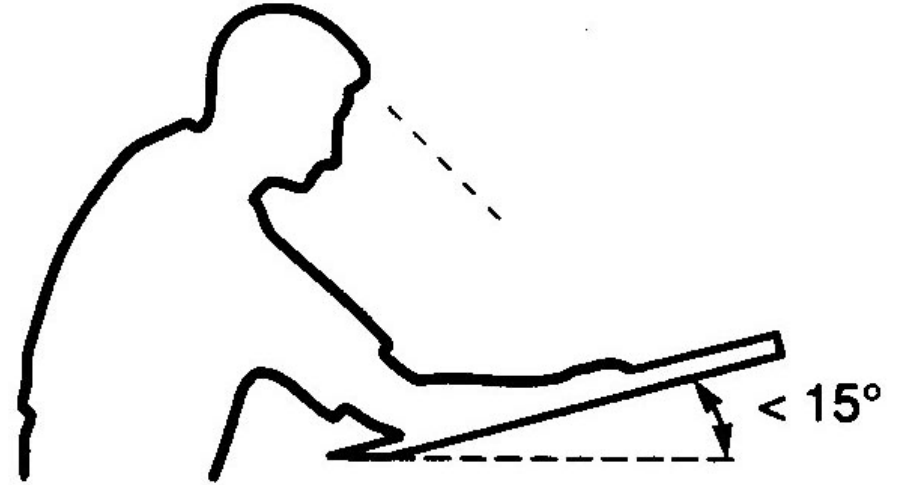


Pheasant, Stephen (1986) *Bodyspace* Taylor & Francis Pg 64

Viewing angles



**Aim to minimise flexing
of the trunk and neck**



**Suggested angle viewing
manual work**

Dul, J & Weedermeester, B (1993)
Ergonomics for Beginners Taylor &
Francis Pg 19

Suggested angles for reading



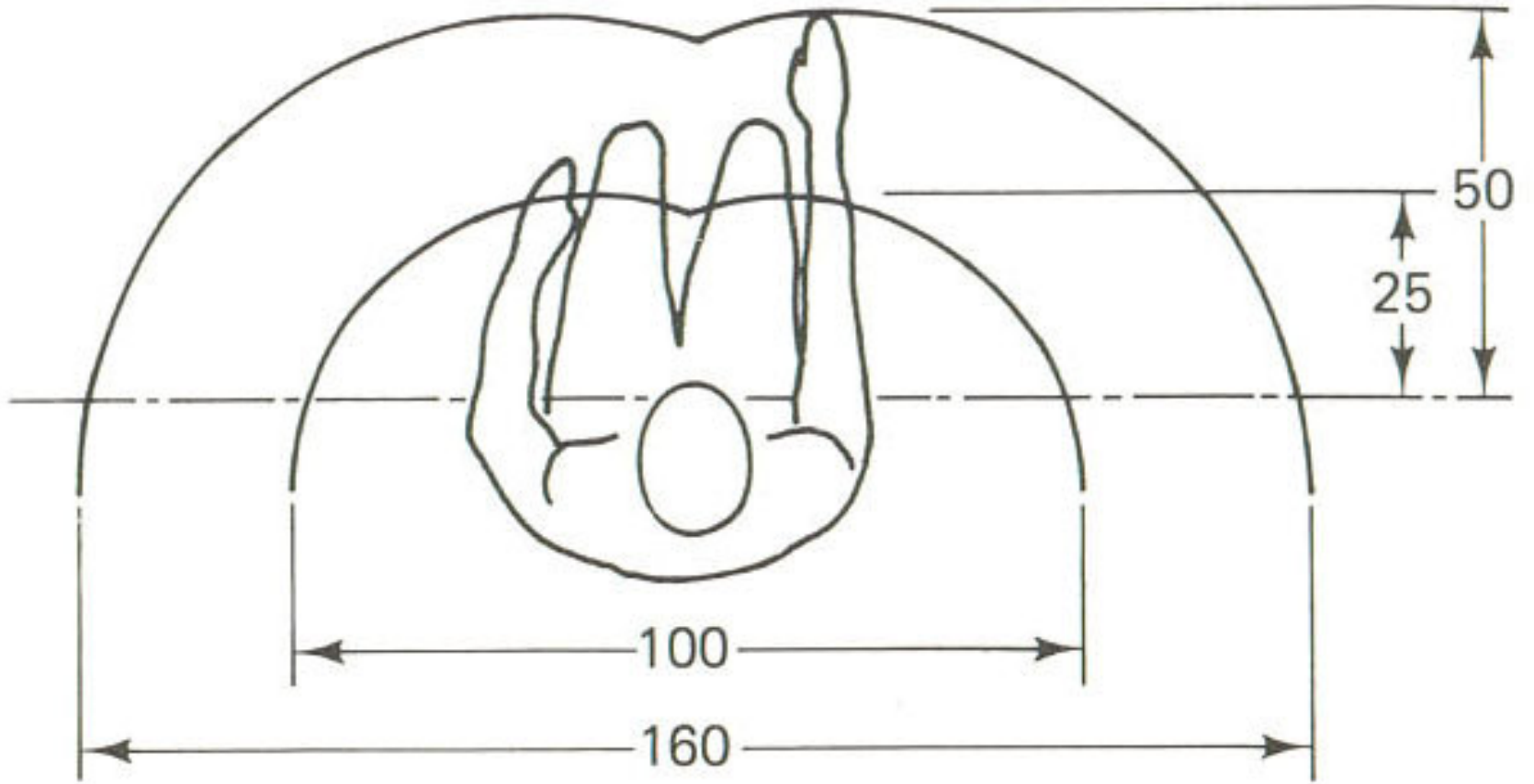
Philips smart connections - Living memory - Café table
2001

Ergonomics - Physical

Reach

Kinetosphere workspace envelope

Arms in relaxed posture and excessive flexing of the spine avoided.



Ivergard, Toni (1989) *Handbook of Control Room Design & Ergonomics*
Taylor & Francis Pg 119

Kinetosphere

Ergonomics - Physical

Other issues

Proxemics

Lighting

Ergonomics - Physical

What does this mean for design?

Need to know about the nature of the tasks to make appropriate design decisions.

Aesthetic - Usability Effect

Aesthetic designs look easier to use and have a higher probability of being used,

whether or not they are actually easier to use.

Aesthetic - Usability Effect

Who finds what 'pleasing' is not an absolute thing.

Context sensitive
place of use
culture
personality of the user.



Other stuff....

Other thoughts about table top interfaces

Paper less office

How little things have changed...



Other stuff....

How little things have changed...

Dominant form of the
computer keyboard paradigm

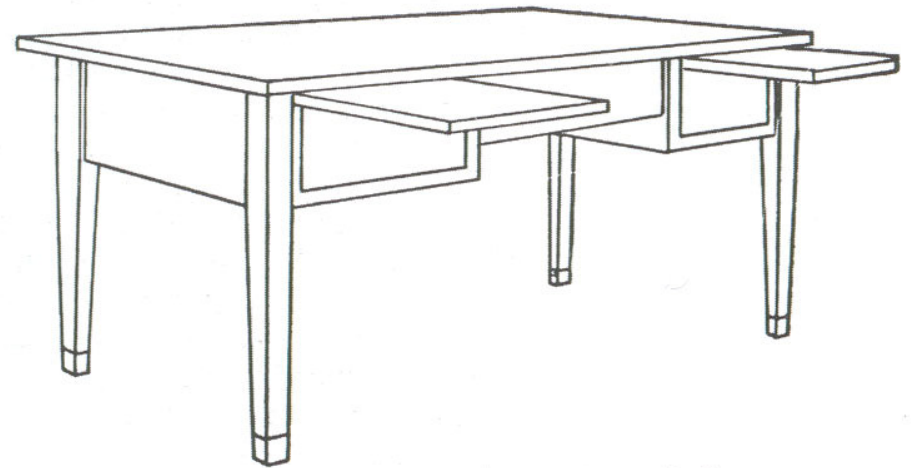


Figure 16. The Modern Efficiency Desk

This desk is little more than a table with three shallow drawers. This construction makes it impossible for clerks to stow away and so overlook papers.

Ayse Birsal – Red Rocket Desk - 2000

So you want to get stuff designed?

More to this than meets the eye

Designers

Make transition between
technologies and commercial
products

Visualise and make
intangibles visible, good for
promoting concepts

So you want to get stuff designed?

Consultancies

Universities

Competitions

Thanks...

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History

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