

Bab II

persyaratan teknis fungsional

Teknis Fungsional

Media Penelitian dan Pengembangan Potensi Air, dimana 40 % fungsinya adalah penelitian dan pengembangan yang diwujudkan dengan adanya laboratorium-laboratorium dan penunjangnya. Sedangkan 60 % sisanya berperan sebagai area publikasi dan promosi.

Dengan adanya laboratorium-laboratorium yang membutuhkan spesifikasi guna dan teknis khusus, maka diperlukan juga ketentuan-ketentuan khusus untuk mendukung tujuannya. Adapun ketentuan-ketentuan khusus yang berkaitan dengan teknis akan meliputi :

- Area Kerja
- Ukuran peralatan dan perlengkapan
- Lay out ruang
- Servis dan kebutuhannya
- Distribusi
- Struktur dan Lingkungan

Laboratorium pada media penelitian dan pengembangan potensi air, adalah laboratorium biologi dan bersifat research dan rutin. Untuk kategori laboratorium pada bangunan ini adalah sebagai berikut :

- Laboratorium Ekologi dan Aquatic Centre (Laboratorium Rutin)
- Laboratorium Biologi dan Biodiversiti Air (Laboratorium Rutin)
- Laboratorium Bioteknologi dan Teknologi Paska hasil (Laboratorium Research)

Fasilitas Penelitian dan Pengembangan

o Area Kerja

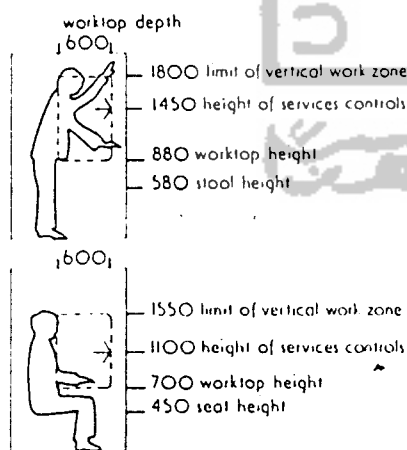
	Area per workplace m ²	Addition for storage and preparation %	Addition for other teaching and research ancillaries %	Balance area addition ¹ %
Pure sciences*				
<i>Teaching laboratories</i>				
Biological sciences (general purpose labs)	4.0	15	Ad hoc in accordance with needs (say 15%)	30*
Biological sciences (other than gen purpose)	5.0	15	..	30*
Physics	5.0	15	..	30*
Chemistry	5.0	15	..	30*
<i>Research laboratories</i>				
Individual or advanced research	11.0	15	..	30*
MSC courses	7.5	15	..	30*
Other technological and scientific subjects				
<i>Teaching laboratories</i>				
Elementary or intermediate	3.7	15	15	45
First and second year honours and general	4.2-4.6	15	15	45
Final year honours	5.6-6.5	15	15	45
<i>Research laboratories</i>				
Research students in groups of 4 or more	7.4	15	15	45
Individual or advanced research	11.0	15	15	45

} balance
area %
includes
allowance
for plant
rooms, etc

* Additional balance area allowances will be needed for plant rooms, ducts, boiler houses and entrance halls: physics—up to 12½% of workplace, storage/prep and ancillary areas; chemistry and biological sciences—up to 20% of workplace, storage/prep and ancillary areas
¹ The balance area is a % addition to the workplace, storage/prep and ancillary areas

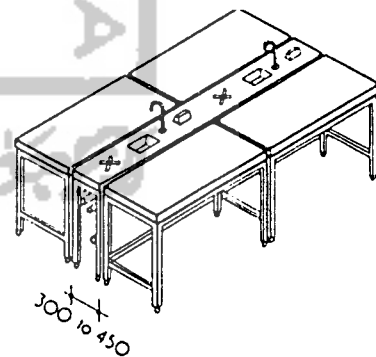
Tabel 2.5 tabel ukuran area kerja, dan kelengkapannya ¹

o Ukuran Peralatan dan Perlengkapan



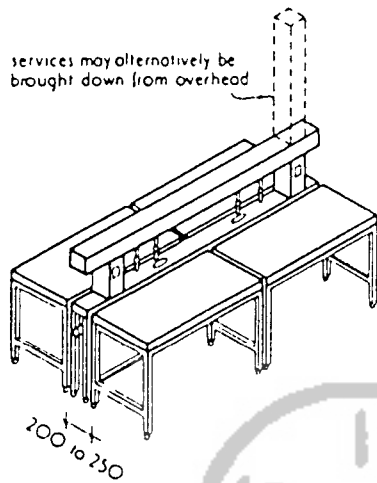
32.1 Limits of reach when standing, or sitting on a stool

32.2 Limits of reach when seated in a chair

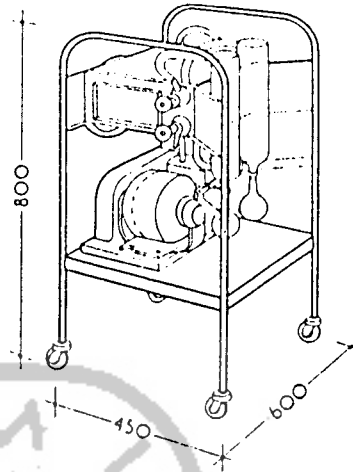


32.11 Workbench services between and below the benches, taking the most space

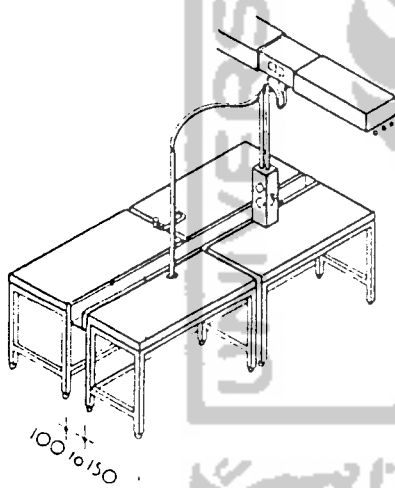
¹ Patricia Tutt and David Adler, New Metric Handbook, The Architectural Press London.



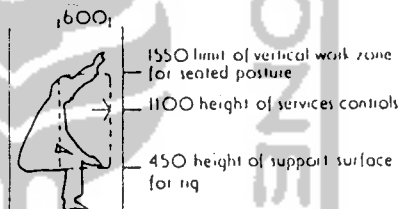
32.12 Workbench services above the worktop suspended at optimum control height (see 32.1)



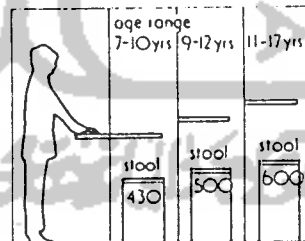
32.16 A mobile vacuum pump, operable on a 13 amp supply, and adjustable to individual requirements



32.13 Individual bollards linked flexibly from trunking just below ceiling level (most economical in space). Note drainage trough between benches



32.3 Limits of reach when seated working on tall rigs Height of service controls specified in 32.1, 32.2 and 32.3 may have to be reduced in practice, but the reduction should be minimised



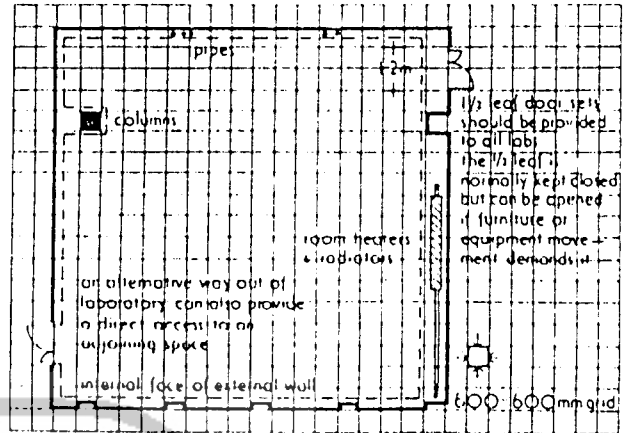
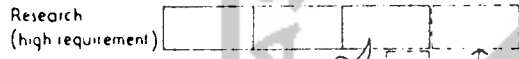
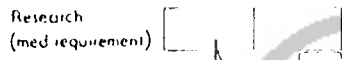
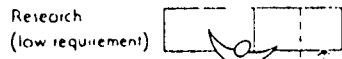
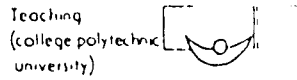
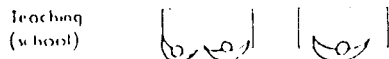
Age Range	7-10 yrs	9-12 yrs	11-17 yrs
worktop DES	640	760	820
height ISO	520	580	640
seated worktop	520	580	640

32.4 Standing and sitting heights for schools

Gambar 2.3
proporsi manusia ketika bekerja dalam posisi berdiri, duduk dan ukuran meja kerja dan pendukungnya²

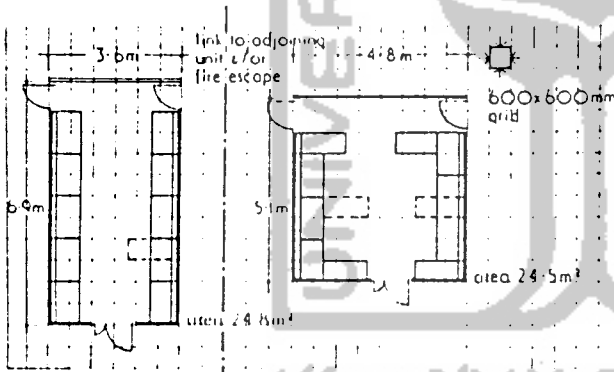
² idem

o Lay out Ruang



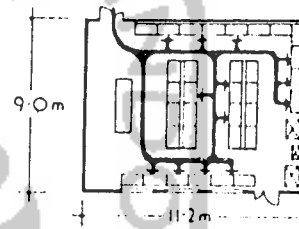
32.27 Effective space and access

32.24 Worktop/equipment areas based on 1200 x 600 mm units

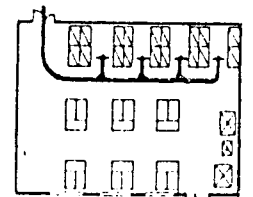


32.36 (left) Research laboratory based on a rectangular unit of space

32.37 (right) Research laboratory based on a square unit of space

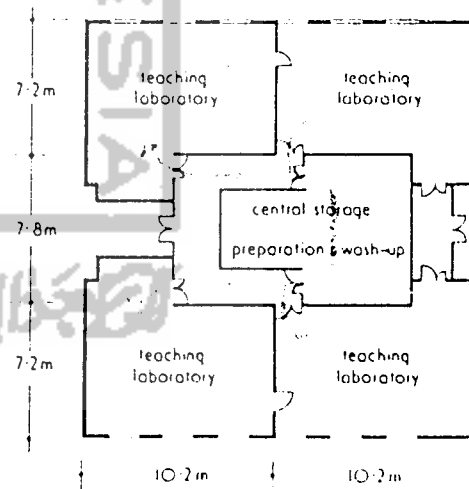


a traditionally dispersed



b centralised for more efficient management and access

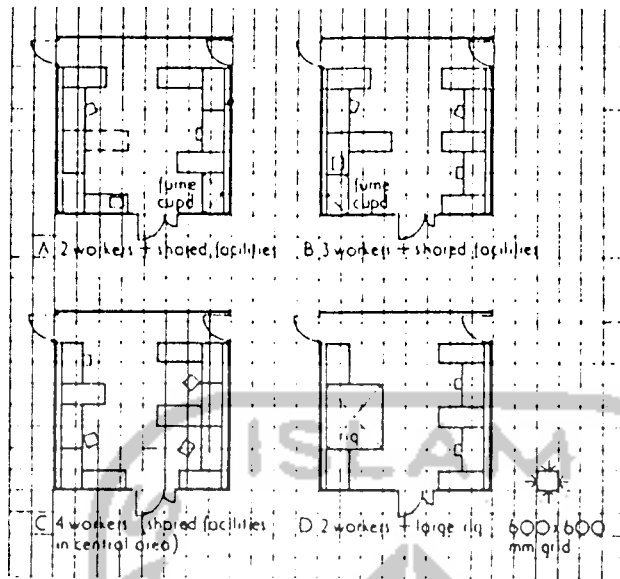
32.28 Distribution of storage within a teaching laboratory:



32.29 Centralised storage for a group of laboratories

Gambar 2.4
Lay out ruang laboratorium dan variasinya beserta area cakupan kerja manusia³

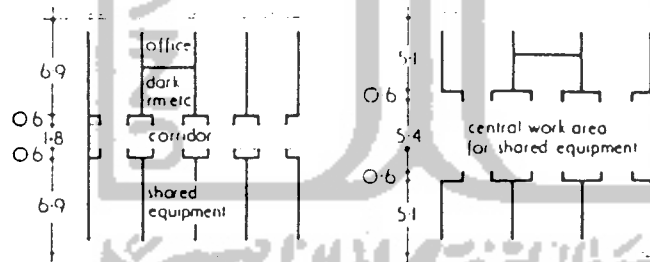
³ idem



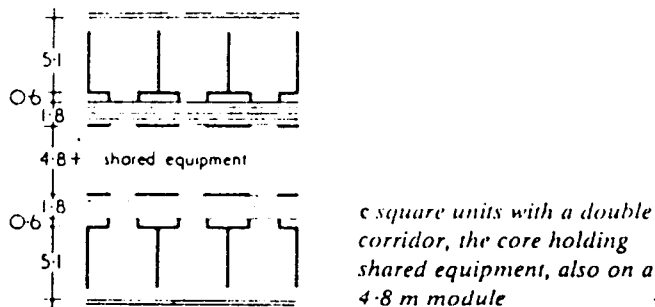
32.39 Alternative layouts within the square laboratory unit shown in 32.37

Gambar 2.5
Alternatif
lay out ruang
laboratorium dari
standar di
gambar 2.4

o Servis, Distribusi dan Kebutuhannya



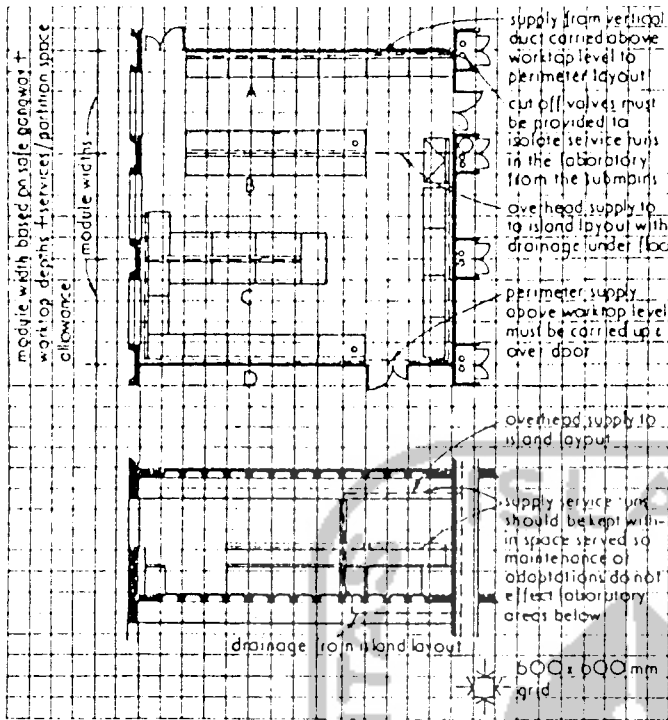
32.38 Plans incorporating the two laboratory types:
a rectangular units with central corridor on a 3.6 m module
b square units with a shared central work area on a 4.8 m module



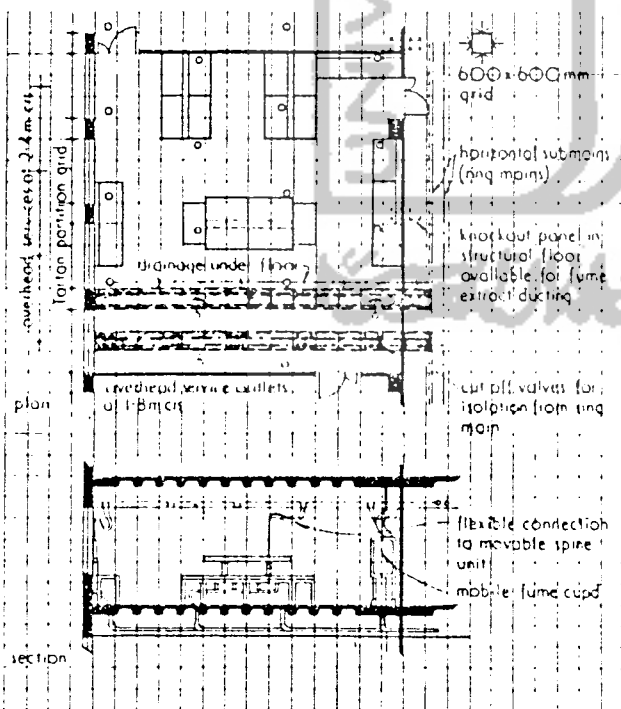
c square units with a double corridor, the core holding shared equipment, also on a 4.8 m module

Gambar 2.6
Hubungan antar
laboratorium dan
area koridor
sebagai servis

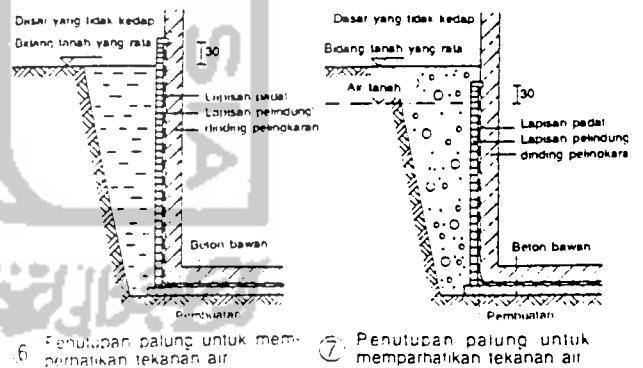
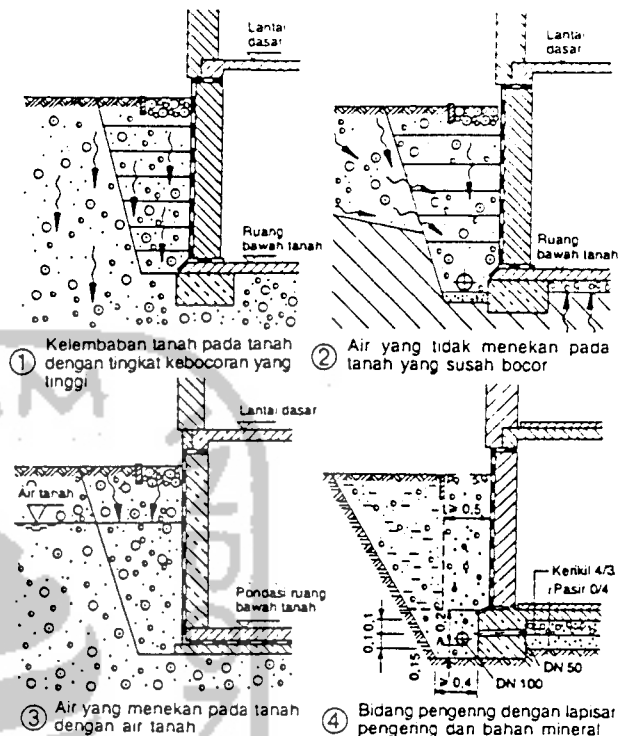
o Struktur dan Lingkungan



32.42 Rigid services distribution integrated with furniture layout:
a plan. Although vertical sub-mains are shown, service runs could alternatively be supplied from horizontal sub-mains as in 32.43
b section



32.43 Rigid overhead services distribution linked via flexible connections to loose furniture and equipment



Gambar 2.7 Distribusi utilitas servis laboratorium terhadap struktur dan ruang. Hubungan kondisi air permukaan dan struktur

a. Laboratorium Rutin

Laboratorium rutin yang mempunyai pekerjaan rutin dan kontinyu yang dalam prosesnya lebih pelan dalam melakukan perubahan dan lebih mudah dipikirkan.

b. Laboratorium Research

Laboratorium research mempunyai kebutuhan untuk menyediakan ruang terhadap keinginan perubahan sangat cepat, dikarenakan kegiatan yang berlangsung berkaitan dengan teknologi produk dan aplikasi dalam masyarakat.

c. Pool dan Aquarium

