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Number : 452

According to the European Standard EN 12464-1:

1- **What should be the recommended average illuminance (E_m)?**
   500 lux
2- **What should be the recommended minimum illuminance (E_{min}) of immediate surroundings?**
   300 lux
3- **What should be the recommended colour rendering index(R_a)?**
   80

Select:

4- **The room geometry (any REASONABLE values are accepted)**
   9*6*2.8 m

5- **The reflection factors (ceiling, wall, floor). (any REASONABLE values are accepted)**
   Ceiling 85%
   Walls 65%
   Floor 30%

6- **The maintenance factor. (any REASONABLE values are accepted)**
   Maintenance factor: 0.80

7- **The work-plane height (any REASONABLE values are accepted)**
   Height: 0.800 m

Designate:

8- **which types of lamps should not be used. Comment.**
   - **(Low-pressure sodium - High-pressure sodium) have low CRI (<40).**
   - **(Incandescent/ halogen bulb) low efficacy, short lifetime and thus not economical.**
   - **(Ceramic metal halide- Tri-phosphor cool- Quartz metal halide…) have a very high CRI and not economical**

9- **The recommended lamp type. Comment.**
   White Fluorescent lamps, because they have approximately the required CRI, high efficacy, long lifetime, not expensive and thus are economical

From the catalogues:

10- **Select the suitable luminaire.**

PHILIPS TMX204 2xTL-DR36W HFP

11- **What is the luminous flux and the wattage of this luminaire?**

luminous flux = 6700 lm

Wattage= 72 W

Select:

12- **The luminaire mounting height.**

2.8m

Determine:

a- **The luminaire arrangement in this case, E_m, E_{min}. Complete the dialux output as pdf.**

At Work plane : Em = 549 lx , , Emin = 334 lx

b- **If the reflection factors are increased, repeat (a).**

If Reflection factors are increased : Floor 40%, Ceiling 90%, Walls 75

Em = 599 lx , , Emin = 373 lx

c- **If the maintenance factor is decreased, repeat (a).**

If the Maintenance factor is decreased to 0.7

Em = 481 lx , , Emin = 292 lx

d- **If the luminaire mounting height is increased, repeat (a).**

If the luminaire mounting height is increased to be 3 m

Then : Em = 437 lx , , Emin = 267 lx

Comment : when I increased the luminaire mounting the lamps would be above the ceiling