**Illumination**

FOR INITIAL ILLUMINATION

Step1: product of lumens, coefficient of utilization (lumens x CU)

Step2: product of length and width (l x w) or alternatively area

Step3: Step1 divided by step2

FOR MAINTAINED ILLUMINATION

Step1: product of lumens, coefficient of utilization and maintenance factor (lumens x CU x MF)

Step2: product of length and width (l x w) or alternatively area

Step3: Step1 divided by step2

**Luminance**

Step1: product of number of lamps, lamp lumens and transmission factor

Step2: product of length and width (l x w) or alternatively area

Step3: Step1 divided by step2

**2D p-to-p**

Step1: divide lamp lumens by 4pi ()

Step2: get the arctan of length and height (arctan(length / height))

Step3: get the cosine of Step2

Step4: product of Step1 and Step3

Step5: the sum of the squares of half the length and half the width

// length = 2x , width =2y

Step6: divide Step4 by Step5

**3D p-to-p**

Step1: divide lamp lumens by 4pi ()

Step2: product of height and Step1 // height = z

Step3: sum of the squares of the height, half the length and half the width of the room

Step4: Step3 raised to 1.5

Step5: divide Step2 by Step4

To be added in the immediate future:

Quantity of fixtures

Step1: subject to change

ILLUMINATION

Step1: Input area of room // limited to square rooms, not sure if I want to split to length and width input fields

// as to eliminate external computations

Step2: input lamp lumens

Step3: choose coeff. Utilization // we need to research still the default value for this when nothing is inputted

// output is at initial illum.

Step4: choose a main. factor // inputting a value here will give a result in the maint.Illumination output

Step5: calculate

Luminance

Step1: input lamp lumens // or input total lumens and n=1

Step2: input number of lamps //

Step3: input transmission factor // we need to research still the default value for this when nothing is inputted

Step4: input room area // limited to square rooms, not sure if I want to split to length and width input fields

Step5: calculate

2D p-to-p

Step1: input lamp lumens //

Step2: compute for I //

Step3: input length and width of room // length = 2x , width = 2y

Step4: compute for d //

Step5: input theta // theta = arctan ( length / height)

// considering adding a height input field as to limit external computations

Step6: calculate

3D p-to-p

Step1: input lamp lumens //

Step2: compute for I //

Step3: input height, length and width of room

Step4: calculate

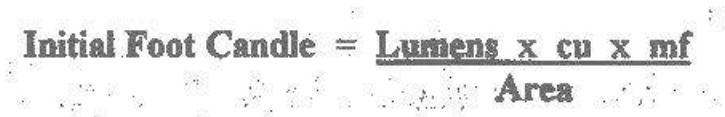
Tobe added in the immediate future:

Quantity of fixtures

Step1: subject to change

Metric: English:

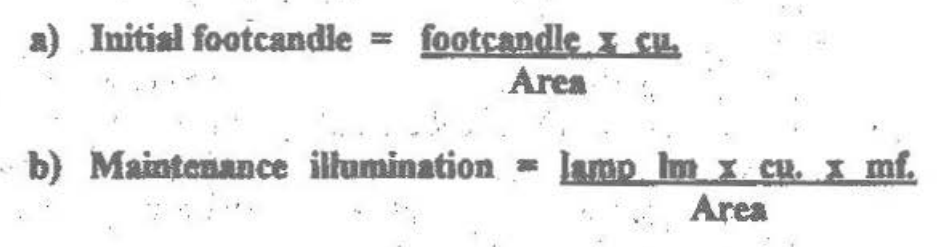
TAB: ILLUMINATION



INPUT: lumens [ illumLumens ]

Area [ illumArea ]

CU [ illumCU ]

OUTPUT: INITIAL ILLUMINATION [ illumInitial ]\*\*

INPUT: lumens [ illumLumens ]

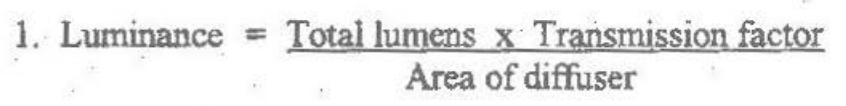
Area [ illumArea ]

CU [ illumCU ]

MF [ illumMF ]

OUTPUT: MAINTANANCE ILLUMINATION [ illumMaintained ]\*\*

TAB: LUMINANCE



INPUT: lumens [ luminLumens ]

Transmission factor [ luminTF ]

Area [ luminArea ]

Number of lamps [ luminNumber ]

( multiply lumens by number of lamps for total)

\*if luminNumber is not filled in, default=1

OUTPUT: footlambert [ luminOutput ]\*\*



Millilambert = metric ; footlambert = English

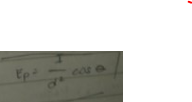
/\*

The output section on luminance has some contradictions…

Eto na lang muna ilagay mo kuya ^\_^

\*/

TAB: 2D POINT-BY-POINT

 \*d = sqrt( side2 + height2)

\*I = lumens / 4π

INPUT: lumens [ twodLumens ]

Length of room (2X) [ twodLength ]

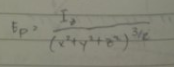
Width of room (2Y) [ twodWidth ]

Theta [twodAngle ]

\*theta = arctan ( side / height )

OUTPUT: lux/fc [ twodOutput ]

TAB: 3D POINT-BY-POINT

 \*that’s raised to 3/2

\*I = lumens / 4π

\*numerator is I \* z

INPUT: lumens [ threedLumens ]

Length of room (2X) [ threedLength ]

Width of room (2Y) [ threedWidth ]

Height ( Z ) [ threedHeight ]

OUTPUT: lux/fc [ threedOutput ]

/\* 2d and 3d are subject to change but that’s all I can do for now…

Will discuss with groupmates ^\_^ \*/