

DESIGN PROJECT – PHASE 1 Diagnostic

Planning of measurement procedure: Things to figure out BEFORE analyzing your space

- what do you need to know about the area (orientation, sun course, masking of sky and sun caused by surrounding buildings, area and building dimensions, space specifications (plane view and section view), space function, window type and area, daylight control system (blinds, overhangs...), electric lighting specifications: type, positioning, technical properties, ...)

and

how can you get this information (through measurements, calculations, pictures of inside and outside views and façades, documents about the building (plane, section views, ...), interview of people, ask facilities/management...)
- what do you want to assess inside the area (accounting for the users' positions and their field of view, glare and contrasts problems, illuminance variation to estimate reading/writing comfort, color rendering quality, reflecting surface types (reflection coefficients can be deduced from a simultaneous luminance/illuminance measurement of the surface if it's diffuse), critical issues, principal sources of light, ...)

and

how can you assess it (what instruments do you need (luxmeter, luminancemeter, personal camera), how do you organize the measurement points spatially (mapping grid at desk level, vertical illuminance, adequate representation of the space for the mapping), do you need exterior measurements as well, what range of values do you expect, ...)
- what questions do you think are most relevant to ask (yourself, of course but also, if possible, the people using the space)
- how will you organize your time as a team in order to make the best out of the 1h30' we have there

Equipment

Each team will have a luxmeter during the whole analysis, and a luminance-meter for a short period of time (about 10 minutes). It is very highly recommended to bring at least one camera per team (we will not have spare cameras for you to borrow). It is also highly recommended to bring measuring tape and any other analysis tools you think would help in your diagnostic.

NOTE: If your camera is a digital camera, you have the opportunity to use it as a very time-efficient multiple-points luminance-meter (using a method called High-Dynamic Range Imaging (HDR): see http://en.wikipedia.org/wiki/High_dynamic_range_imaging).

For this, you will have to have access to a Mac and calibrate your camera in advance, following the instructions given on <http://www.anyhere.com/> after having downloaded the (free) "Photosphere" program on the Mac computer. If you don't have a Canon camera, it might still work just fine (with a slightly less reliable calibration and probably more manual procedures).

If you are interested in this option, please contact us as soon as possible (at the very (very) latest next Tuesday).

Helpful literature (highly recommended):

Tips for Daylighting (LBNL, 1997), downloadable from :

<http://windows.lbl.gov/daylighting/designguide/designguide.html>

M. Fontoynt (Ed.), *Daylight Performance of Buildings*, James & James, 1999: pp. 12-20 (if you can't get it at the Rotch library, we can make copies for you; just send us an email).