DCHI Working Group

Output document

Display Lighting

(and mixed lighting)

Topic
Display Lighting

Background
A convention exists for display lighting and it has been highlighted by two accreditations in feedback for assessors on common reasons for audit failure. The DCHI commercial working group has been asked looked at whether the guidance and rules are sufficiently clear and robust.

Introduction / overview
Convention 7.04

> *Where zones incorporate an activity whereby SBEM automatically assumes the presence of display lighting but none is actually present, the display lighting efficiency for SBEM shall be entered such that it is the same as that of the general lighting present in that zone.*
> *Where possible this should be calculated but as this requires detailed measurements of the lm and cW this is not usually practical in existing buildings. The following 'default' values should therefore be used:*
>
> *1. For all general lamp types except Tungsten or Tungsten Halogen; you must enter that the display lighting uses efficient lamps and enter 50lm/cW in the relevant Lumens per circuit wattage box.*
> *2. For Tungsten or Tungsten Halogen general lamps; you do not enter that the display lighting uses efficient lamps and you do not have to enter a value in the Lumens per circuit wattage box.*

Initially guidance was sought on which zones "incorporate an activity whereby SBEM automatically assumes the presence of display lighting" however the accreditations approached did not know. A DCHI member (*thank you to Paul Baker*) has searched the data tables and located the relevant activities. While a full list has been identified they can be summarised as:

Obvious:
Anything with the following words in the activity type:
- Sales / Display
- Reception

Not so obvious:
- Eating / drinking areas (Pub/Hotel/Retail only)
- Circulation areas (Library/Museum only)

With the benefit of the above knowledge we have considered the implications of the guidance.

Strengths
1. On the face of it the existing convention is fairly clear and easy to understand.

Weaknesses
1. The guidance relies on an interpretation of the expression "display lighting" and in practical situations it will not always be possible to determine what is actually display related, indeed what is a display light to one occupier could be a work-station light to the next.

2. Once again assessors have to deal with something that doesn't exist by pretending it does. If there is no display lighting but the area lighting is low energy, assessors have to enter a specification for display lighting.
3. There will be inconsistencies, for example it seems the staffroom/canteen will have display lighting assumed if it is in a shop but not in an office (although of course it will not actually have display lighting in either).
4. Receptions will assume display lighting even though in many Level 3 buildings the receptionist is lucky to have a light at all. The choice between reception / office / circulation becomes more significant (reception often being an unmanned desk in an undefined entrance area / wide part of a corridor).
5. It is unclear what represents display lighting in a pub/hotel eating/drinking area. They frequently have perimeter lighting; often it is using up-lighters or down-lighters reflected off pictures or other decorative features. So, is this area lighting to be zoned for, or is it display lighting?
   DCHI is concerned there may not be a consistent approach from accreditations on this one.
6. The one-size-fits-all approach of 50lm/cW is an approximation at best.

Opportunities

1. The basic convention is written and arguably simply requires some further clarification, possibly focused around the defining the term "display lighting".
2. Potential for error could be reduced by publishing the list of activity types which will assume display lighting.
3. The function itself is consistent for a given activity type so it can easily be automated by SBEM to eliminate potential error.

Threats

1. There is still potential for interpretation differences between assessors and more significantly between accreditations.
2. Leaving assessors to spot when the software will make an assumption and adjust for it is far less reliable than programming the software to appropriately adjust for the assumption it is making.

Summary

There is a requirement for clarification of the term "display lighting" and an opportunity to automate the handling of display lighting to improve accuracy and consistency.

Conclusion

In the first instance the convention needs to be supported by a definition of display lighting that will address situations such as the pub lighting and reception examples referred to above. This guidance needs to be agreed by the conventions groups and circulated by all accreditations to avoid different accreditations forming different interpretations.

In the second instance the software needs to be modified to eliminate the potential for error caused by the hidden assumption of display lighting.

A decision has to be made between two possible courses:

Option 1 – Investment of probably no more than an hour of programming time to automate the process and eliminate the risk of error, v/s

Option 2 – Ongoing extra work for thousands assessors with significantly increased risk of error, audit failures, re-lodgement costs etc.

The DCHI view is that the only justifiable choice is Option 1. Failure to make a decision is in effect a decision to impose option 2 on assessors.

Recommendation

The sensible approach would be for SBEM to default display lighting to be same as area lighting in zones where it is assumed. Assessors should then have to indicate where specific display lighting is present and is a different lamp type from the area lighting.

In this instance assessors could select the type of display lamps. SBEM would then use an appropriate library value for the efficiency of the display lighting (override possible where design efficiencies are available). This would be much more sensible and accurate than an arbitrary 50lm/cW manually entered irrespective of L/E lamp type when the assessor remembers to adjust for the quirks of the software.

Further recommendation

This is part of a larger issue and both could be solved quite simply with a small amount of programming time invested in SBEM.

All that is required is the additional functionality to select “more than one lamp type present”. In this instance the assessor should be able to select multiple lamp types up to (say) 3 and for each, enter the percentage area covered (simple validation to ensure total is 100%). It is then not difficult for SBEM to calculate energy appropriately in the calculation.

This simple solution would avoid the issue of zoning for mixed lamp type conflicting with zoning for day-lighting and for activity type.

A small amount of programming time would save a massive amount of assessor effort and reduce error with less audit failures for accreditations to deal with. It would also deliver increased consistency and accuracy resulting in a more robust EPC for the client and DCLG/DECC.

A small software change would provide a low cost, high return win-win-win situation.

Document produced for DCHI
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Date – 26 June 2011