

Lab Notes

Issue 9

Dealing with Discomfort Glare in the Interior Workplace

1.00 Introduction :

This Lab Note is one of several which discuss the matter of glare in the workplace. Notes have been issued as a series of short and easily digestible articles, rather than one long and heavy text book.

This Issue 9 Lab Note aims to give guidance as to how the problem of Discomfort Glare may be recognized and dealt with in the normal interior workplace.

Lab Note Issue No 8 “The Control of Glare by the AS1680 System” discusses the three methods of limiting Discomfort Glare as recommended in AS1680.1, and it is suggested that Lab Notes 7 and 8 should be read before proceeding with this document

Other issue numbers and titles are as follows :

Issue 2 : *The Unified Glare Rating System as a Productivity Tool*

Issue 7 : *What is Glare?*

Issue 8 : *The Control of Glare by the AS1680 Systems*

Issue 10 : *Disability Glare in the Outdoor Workplace*

The primary Australian Standard on interior lighting is known as AS1680.1-1990 and is entitled “Interior Lighting, Part 1 : General Principles and Recommendations.”

It includes both quantity and quality recommendations for what is generally regarded as current best practice in Lighting in Australia.

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The three major quality recommendations are -:

- Limitation of Discomfort Glare
- Control of unwanted reflections
- The provision of a pleasant and adequate brightness distribution within the workplace.

2.00 Recognition of a Discomfort Glare Problem :

As discussed in Issue 7.0 "What is Glare?," there is anecdotal evidence to show that Discomfort Glare has a cumulative effect. Seldom do symptoms appear early in the work day as they generally become apparent as a headache in the afternoon. Headaches tend to increase in severity as the week progresses, and are usually not evident at the weekends.

This pattern tends to recur irrespective of a person's diet or rest routine. A sleep or a complete change of environment appears to be the only "cure," but only until the usual routine is again resumed.

This pattern will often reoccur over a period of many weeks before the person recognises that there is a problem. In some cases that person has not recognised the reoccurring pattern until the matter is discussed with an investigator.

The recognition and understanding of a Discomfort Glare problem is neither easy nor obvious, but there are techniques which can be applied by the Lighting specialist or the perceptive layman to assist in the situation.

3.0 Suggested Technique for the Identification of a Glare Situation :

One suggested technique for identifying a likely Discomfort Glare problem is set out in step by step form as follows :

Step 1

Sit or stand as comfortably as possible in the normal position used in the workplace of the complaint.

If there is no particular location or you are following a general complaint about the work space, go to either the back of the room or the middle of a side wall and look generally across or along the room.

Step 2

Fixate, ie. concentrate, on some fixed object at the end of the room at eye height. This is to ensure that your optical axis is horizontal. This may mean fixating on a door knob or light switch, but if no such object is available, a chalk mark or a piece of paper stuck to the wall will suffice.

One needs to hold this position for a few minutes so it is important to be reasonably comfortable, as otherwise pains in the neck or back may hinder observations.

In this position the overhead luminaires should be in the observer's outer or parafoveal field of view.

Step 3

Using one hand shield the overhead luminaires from sight, while still fixating on the object for several seconds.

Step 4

Uncover the eyes so that the luminaires are now again within the parafoveal field of view, and hold this position for several seconds.

Step 5

Repeat this process over a period of 3 or 4 minutes, covering and uncovering the eyes.

At the same time ask the question "Is the room **significantly** more comfortable when the eyes are covered, than when they are uncovered?"

Step 6

Repeat this process in other parts of the room if you are unsure or unable to make a decision. If there is more than one complainant, then several positions should be tested.

The first photograph below demonstrates how the technique can be performed, using a solid object such as a wooden ruler for a shield. In the position shown the observer is fixating on a distant object, and the ruler has to be lowered (see second picture) in order to expose the eyes to the overhead luminaires.





Experience has shown the following :

The question - “Is the room **significantly** more comfortable when the eyes are covered, than when they are uncovered?”

The answer -:

- 1• “No, or probably not.” In this case Discomfort Glare is unlikely to be the problem.
- 2• “Yes, or probably yes.” It is highly probable that there is a Discomfort Glare problem which should be investigated.

Remember Discomfort Glare is a cumulative phenomena. If there is the slightest sign of its presence after a few minutes of exposure, it is more than possible that it will be evident after hours or days of exposure.

4.00 Suggested Further Action :

The next step depends upon the skills and talents of the investigator. If the investigator is a trained Lighting specialist, proceed in the accepted manner. Alternatively if the investigator is a lay person, then the problem should be passed on to a trained specialist for further action.

Remember the problem will not go away by itself. It is a problem which must be remedied, and it is not just a figment of someone’s imagination.

5.00 Associated Problems :

Experience has also shown that seldom does a Discomfort Glare problem exist by itself. A Discomfort Glare problem is usually accompanied by some other occupational health problem eg. -:

- Other Visual Problems - eg. uncorrected vision due to incorrect glasses, or the need for glasses
- Environmental Problems - eg. the workplace may be very gloomy, perhaps due to dark paneling or wall finishes
- Physical Problems - eg. uncomfortable chairs, furniture of unsuitable heights, lack of comfortable thermal conditions in the workplace, (too hot or too cold), unsuitable control of noise levels
- Social Problems - eg. -: tension between members of Staff, tension between Management and Staff, private personal problems or ill health possible personal use of drugs or alcohol.

All the above described symptoms can be regarded as stressors. When one or more of these stressors combine with a major stressor such as Discomfort Glare, then it is highly probable that a Multi-Factor Stress situation will develop.

Again it must be emphasised that these problems must be solved since they will not go away of their own accord, and the sooner action is taken the better for all concerned.

Any enquiries should be directed to -:

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