

# Can different forms of office lighting affect the performance of office workers?

This was the question addressed by a field simulation study undertaken in a joint project between the Lighting Research Center (LRC), the National Research Council Canada, and Battelle National Laboratories for the LightRight Consortium.

The LRC furnished an open plan office space for nine workers. Over several weeks, 181 temporary office workers were hired to work in the office for a whole day. During that day, the workers undertook many forms of clerical and cognitive work, evaluated the physical environment, and reported on their moods.

Four different lighting installations were used in the office.

## Results

The data collected showed that:

- The four lighting installations were discriminated. The *Base Case* lighting was considered comfortable by 71% of the participants. The three better lighting installations were considered comfortable by 81% to 91% of the participants.
- Visibility, practice, and fatigue affected task performance.
- The different lighting installations had no effect on the performance of complex cognitive tasks.
- The lighting controls were used sparingly but effectively. Most participants used the lighting controls once near the beginning of the day. The illuminances chosen varied widely but on average were below the current office lighting recommendations.



*Base Case:* A regular array of parabolic-louvered luminaires



*Best Practice:* A linear system of direct/indirect luminaires together with some wall-washing fixtures



*Switching Control:* The same as the *Best Practice* case but with a moveable, switchable desk lamp that provided additional light if desired



*Dimming Control:* Direct/indirect luminaires suspended over the center of each cubicle, together with wall-washing. The direct component could be dimmed by the occupant of the cubicle.

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