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Honors theses

Lighting in healthcare buildings: an experimental analysis of performance and ergonomic aspects

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Aim of the present document is to evaluate, through an on-field approach, the environment enlightening quality and the resulting benefits within the Azienda Ospedaliera C.T.O/Maria Adelaide of Torino.

The purpose is to individuate, where necessary, potential improvements on a projectual basis.

Study has been conducted following a similar pattern previously managed on Asti's Ospedale Cardinal Massaia.

The empirical approach is driven by subjective and objective analysis carried on field, with the aim of comparing test results and cross check measures taken within the hospital together with feedback from patients.

Structures involved in the analysis process where:

- Centro Traumatologico Ortopedico (C.T.O.)
- Unità Spinale Unipolare (U.S.U.)
- Ospedale Maria Adelaide (O.M.A.)

Quality of environmental enlightenment resulted to be a fundamental element as far as physical and psychological condition perceptions, both when bound to quality of environments and architectural features of healthcare buildings where patients resided and staff was operating.

As far as the staff, hospital are a workplace where enlightenment conditions are considered a tool granting safety on daily routine visual aspects, without affecting nor fatiguing eyes.

On the opposite side, patients are more sensible to staff behaviours, comfort and environmental wellness: under this circumstances, enlightenment conditions, above all when bound to natural lights in the room and its view, have been reported as fundamentals.

The objective analysis of environments has done generally in patient's rooms, visiting rooms, nurse's rooms, offices, secretaries, medicine's rooms, waiting rooms and corridors.

In every environments has been measured the enlightenment and the luminance in different times of the day and repeated with lights on and off.

Every measured environments have been scheduled with a synthesis of analysis results and the confrontation with the values provided by laws. For the subjective analysis the work has been done with the cooperation of “Dipartimento di Psicologia” of University of Turin: two different questionnaires has been developed for the two different categories of operators (doctor and nurse operators and patients). 246 questionnaires have been collected in total, 112 completed by operators and 134 by patients.

The results have been elaborated by a software for statistic evaluation and then organized in synthesis charts to permit the comparison with data of objective measurements. The results represented a useful instrument to optimize the quality of enlightenment. To this purpose some strategies have been elaborated, organized in phases and in priority order, related to the four aspects of lighting project: sources, light devices, Screens, systems and control and integration systems of natural light/artificial light.

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