

Accepted Manuscript

Title: ANALYTICAL STUDY ON DESIGN DEFICIENCIES
IN THE ENVELOPE PROJECTS OF HEALTHCARE
BUILDINGS IN SPAIN

Authors: Manuel J. Carretero-Ayuso, Justo
García-Sanz-Calcedo



PII: S2210-6707(18)30734-0
DOI: <https://doi.org/10.1016/j.scs.2018.07.004>
Reference: SCS 1174

To appear in:

Received date: 20-4-2018
Revised date: 8-7-2018
Accepted date: 10-7-2018

Please cite this article as: Carretero-Ayuso MJ, García-Sanz-Calcedo J, ANALYTICAL STUDY ON DESIGN DEFICIENCIES IN THE ENVELOPE PROJECTS OF HEALTHCARE BUILDINGS IN SPAIN, *Sustainable Cities and Society* (2018), <https://doi.org/10.1016/j.scs.2018.07.004>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ANALYTICAL STUDY ON DESIGN DEFICIENCIES IN THE ENVELOPE PROJECTS OF HEALTHCARE BUILDINGS IN SPAIN

Manuel J. Carretero-Ayuso Ph.D.¹ and Justo García-Sanz-Calcedo Ph.D.²

¹ University of Extremadura. Department of Graphic Expression.
Avenida de las Letras s/n, 10004 Cáceres (Spain).
mjcarretero@yahoo.com (corresponding author)
Tf. +34-924 289 300

² University de Extremadura. Department of Graphic Expression.
Avenida de Elvas s/n, 06006 Badajoz (Spain).
jgsanz@unex.es

Highlights

- Envelope design failures in 17 healthcare building projects were analyzed.
- Project failures in 51 different control parameters and 344 incidents were characterized.
- The 29% reviewed projects were of high quality, 53% of intermediate quality and 18% of poor quality.
- More detected failures had to do with the ‘omission’ of data (39%) or with the lack of ‘definition’ in the stipulations (25%).

ABSTRACT

The deficiencies in the design of a building influence its environmental sustainability. In this paper we examine the design failures which are common in the envelope of healthcare centres of Extremadura, Spain, by analysing a homogeneous sample of 17 projects of public healthcare centres sized between 350m² and 3500m². All healthcare centres’ envelopes were comprised of brick facades and flat roofs. A total of 344 incidences were found in the sample, related to 51 control parameters. The average number of incidences per project was of 14. It was noted that 29% of the projects reviewed were of high quality, 53% of intermediate quality and 18% of poor quality. A significant amount of the detected failures had to do with the ‘omission’ of data (39%) or with the lack of ‘definition’ in the stipulations (25%). It has been demonstrated that larger and costlier healthcare centre projects usually have higher quality designs with fewer critical errors, independently of their geographical location and construction year. This research allows to identify the projects’ aspects which can lead to errors in the envelope during the healthcare centres’ service life. Furthermore, a tool has been developed to minimise failures in the design stage, preventing their later appearance.

Download English Version:

<https://daneshyari.com/en/article/6774831>

Download Persian Version:

<https://daneshyari.com/article/6774831>

[Daneshyari.com](https://daneshyari.com)