

An Investigation in to the Difficulties of Installing Residential Fire Protection Systems in New Built Homes in Wales

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Introduction

In 2014 it was made compulsory for all 'high risk' building to have automatic fire suppression systems installed. From 2016, this was the case for all new residential buildings in Wales. This has made a significant impact on the design, build and cost of building new homes within Wales. The study explored the specific difficulties which housing developers have encountered. This research was carried out by a case study in West Wales, interview and desk research throughout the literature review.

Aim and Objectives:

The aim of the study was to investigate the difficulties which housing developers face when building homes in Wales. The objectives were to:

- Understand the financial constraints of installing residential fire sprinklers.
- Investigate how location affects the installation of fire sprinklers.
- What are the design difficulties housing developers encounter and how do they overcome this?
- What is the most financially viable option and have the least difficulties?

"All dwellings should have a fire detection and alarm system, minimum Grade D2 Category LD3 standard, in accordance with the relevant recommendations of BS 5839-6."

-Approved Document B (Fire Safety) Volume 1: Dwellings, 2019 edition.

Methodology

A case study and interview were carried out to gather results on the desired aim and objectives. The case study, carried out in West Wales gave first hand information of the difficulties which are faced for housing developers. The interview was carried out to back-up the information found, using triangulation.

Pie chart 1 illustrating the breakdown of the updated costs

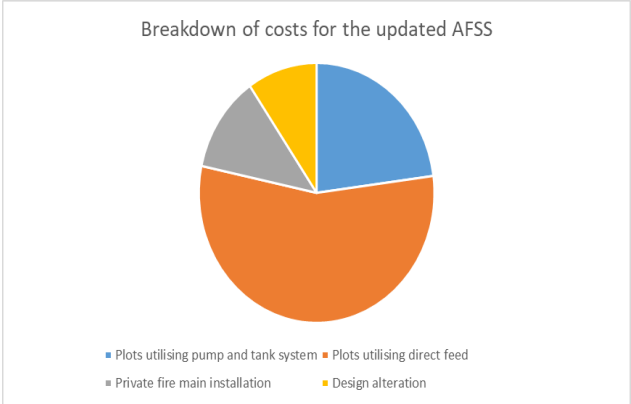


Table 1 showing the breakdown of the updated costs

Description of Works	Cost
33 plots pump and tank installation	£99,495.00
Option 1 for 106 tanks	£240,560.00
Private Fire Main	£52,397.62
Design alterations	£41,700.00
New AFSS Total	£334,657.62

Results

The study found that there are a variety of design, location and financial difficulties which housing developers had to adapt to. Pie Chart 1 shows an illustration of the information found in table 1. The developers had originally opted for a pump and tank system, which in total costed £505,860.00, including alterations to designs to include reinforcements and amendments to the timber frame. These costs were unexpected as the water pressure within West Wales was lower than expected, which further increased the cost to install pumps to reach the correct pressure. By installing a private fire main, the developers saved £171,202.38 in total, an installation which was not expected at the beginning of the project, and not explored by the Author within the literature review. This however, assisted in reaching the aim and objectives.

Conclusion

To conclude the study, it was found that the aim and objectives were successfully met. The results showed that the developers have overcome various issues with an unexpected route, of installing a private fire main. This was an expenses which provided value to the developer as it was an initial high cost, but did not require them to install the expensive pump and tank systems, which result in further reinforcements and pressure issues due to the location. With all the research found, it demonstrated the difficulties which developers have faced, and how they can be overcome.

References

1. The Welsh Government (2015), part of 'Building Regulations; approved documents and Building regulations guidance', Approved Document B, Volume 1 – Dwellinghouses, www.gov.wales