

INTRODUCTION

This report will propose research of roofing types in Europe and how the choice of the roofing materials are affected by the climate avoiding losing heat by the roof in different climate conditions

BACKGROUND

Roofing is often ignored as an energy efficient component of a house, but it has a profound effect on the other systems, especially air conditioning. An efficient total roof system can lower the energy required for cooling's home by 30 percent or more.

Roof color plays some role in attic temperature, but its role isn't nearly as significant as roof material and attic ventilation. Depending on the climate, a light or dark roof in a residential application may work in favor of, or combat, the primary conditioning needs (heating or cooling). If its interior comfort the key point to resolve, then adequate insulation in the roof or attic will have the biggest effect on thermal resistance. (Best Practices Guide to Residential Construction, 2015).

The research question is could there be lines that could be drawn on a map of Europe that show roofing materials changing because of the climate.

RESEARCH AIM AND OBJECTIVES

Against the background earlier outlined, this research project will be undertaken with the aim of carry out a statistics as to which different climate conditions are important of roofing design.

To achieve this aim, the following objectives will be pursued which include but is not limited to the following:

- Objective#1- Search available literature for two comparable studies.
- Objective#2- Design Research Methodology.
- Objective#3- Collect data on roofing materials.
- Objective#4- Analyze formal statistics comparing roofing materials with climate.
- Objective #5- Discuss the results and conclusions.

SCOPE

The scope will be limited carry out the study just in Europe, just like a only attending to European rules and conditions.

LITERATURE REVIEW

The research based on Climate study around Europe focusing in climatic studies, maximum and minimum temperatures and data analysis in official documents and website (AEMET, 2015; V.Köppen, 1918-1936). Köppen's method consists of a global climate classification which identifies the climate's type with a series of letters in accordance with behavior of rainfall and temperatures characterizing types of climate.

Data from University of Strathclyde Engineering have been collected to analyse radiation and wind in EU.

Understanding Attic Ventilation (Joseph Lstiburek,2006), *Building Science Digest* (2015) shows the last conclusion and decisions as for energy and efficient roofing materials.

Roof Color (Vernier. N.p.,16 May 2012) among others will be adapted to achieve the hypothesis of roofing colors.

