

## Sustainable Consumption and Production: Eco-Friendly Material Selection

Ozge Suzer<sup>1,2</sup> (ozgesuzer@cankaya.edu.tr), and Meltem Yilmaz<sup>2</sup>

<sup>1</sup>Cankaya University, Department of Interior Architecture and Environmental Design, Balgat, 06530, Ankara, TURKEY.

<sup>2</sup>Hacettepe University, Department of Interior Architecture and Environmental Design, Beytepe Campus, Ankara, TURKEY.

The material selection in the construction industry is essential since unless it is appropriately regulated it can imply a threat for the nature and human health. Natural materials such as wood and stone seem to be better choices considering the harmful emissions in production, consumption and disposal processes. However, production of these type of natural materials is harmful in the sense that they increase the depletion/consumption of the World's natural resources. As it is widely known, the forest depletion or decreasing of mines reserves imply great danger for the future generations. On the other hand, man-made hi-tech products can also be harmful for human health and natural life, regarding their emissions, as mentioned above. Another threat for the planet Earth is the enormous amount of waste produced globally that gives out polluting solids, liquids or gases. Similarly, the present solution for getting rid of wastes by 'landfill' needs urgent and critical decisions to be taken, since we are rapidly running out of suitable land. A recent conscientious effort has been undertaken by several governmental agencies and industrial firms for utilizing the waste and converting them into useful products. Along these lines, the material composed of %80 recycled waste and %20 plastic for use as various construction materials produced by the company "Cierra Recycling" seems to offer a good compromise since it does not consume natural resources, moreover it turns waste into useful products, and therefore reduces carbon and other harmful emissions into the atmosphere.

This paper compares two products used in the construction industry from the aspect of "**Sustainable Consumption and Production**". In this context, **PVC**, and the **Recycled Waste Material**, produced by the firm Cierra Recycling will be investigated, as they are both plastic based materials even though the latter holds a smaller percentage. They will be compared regarding; **(i) their total energy contents** (as to the energy required for their production, packaging, usage, and disposal), **(ii) consumption of the environment** (as to the land for building or mining, forest depletion), **(iii) emission of gases, dust, chemical and natural substances**, **(iv) raw materials** (as to the natural resources depletion), **(v) waste generation** (as to production, packaging and usage of the materials), **(vi) recyclability** (as to the generation of secondary waste cycles), **(vii) cost**, and **(viii) durability**. The methodology of the study consists of initially the literature search on physical and chemical properties related with the items mentioned above. The second part consists of a set of experiments on two samples of materials. The two samples having the same age will be examined regarding their responses to certain thermal changes, their emissions, their wear etc. Furthermore, through some questionnaires, the general consumer inclinations towards these two materials and their usage areas will be assessed. The main aim of the paper is to point out the drawbacks of the production and the consumption processes, and to draw the attention of the construction-industry, in order to create an overall awareness in material selection considering the '**sustainability**' issue.