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## Sustainable development in the concepts of modern bathrooms

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### Abstract

"Good ergonomic design" in the bathroom is not just about looks but equally or maybe above all about functionality, practicality and sustainability. Sustainable development in modern bathroom is not a fad. It is undeniably an absolute necessity. This applies to the materials, devices and installations used in the bathroom, their environmentally-friendly production, design and use. The bathroom industry, taking care of the environment and the needs of users at the same time, is offering more and more products that prevent waste of natural resources and control their consumption while providing a healthy and hygienic conditions and safety of use of the bathroom. Leading bathroom manufacturers and designers are active in many environmental initiatives and introduce new concepts and technologies that save water, energy, materials and costs. Sustainable solutions, an economical in operation and at the same time comfortable to use, appear as a result of work on the optimal use of natural resources and the preservation of natural compounds in the system: user - bathroom - the environment.

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### 1. Introduction

In the aftermath of climate changes there has been an increase of overall interest in sustainability of material environment of human life. Sustainable development in living environment is not only a trend. Similarly sustainable development in modern bathroom is not a fad. It is undeniably an absolute necessity. Contemporary societies are not able to function without water, energy, heat, electricity and fuel. It is obvious that the precious natural resources are not available in unlimited quantities. Therefore is absolutely no alternative to necessity of sustainable development. Man must learn to be more careful with using of natural resources.

Even if sustainability begins with the individual consumer and his hygienic and toilet habits, washing, cleaning, that cause a domino effect with consequences for our planet and ecosystem, bathroom companies that manufacture millions of hygienic and sanitary facilities for distribution around the world bear a particular responsibility.

The contemporary bathroom industry is aware of this responsibility and taking care of the environment and the needs of users at the same time, is offering more and more products that prevent waste of natural resources and control their consumption while providing a healthy and hygienic conditions and safety of use of the bathroom. Leading bathroom manufacturers and designers are active in many environmental initiatives and introduce new concepts and technologies that save water, energy, materials and costs. Sustainable solutions, an economical in operation and at the same time comfortable to use, appear as a result of work on the optimal use of natural resources and the preservation of natural compounds in the system: user - bathroom - the environment. Sustainability applies to the materials, devices and installations used in the bathroom, their environmentally-friendly design, production and use [1,3,5].

## **2. Perspectives for sustainable development**

Sustainable development should not be treated as a distraction and complication, but rather as a possibility of preparation to needs of the future. Awareness of sustainable values and necessity of sustainable actions and practical, rational involvement and contribution in sustainable development of material environment gives a sense of responsibility for the future [3].

Ethics of responsibility of German philosopher Hans Jonas belongs to the most popular trends of global ethics. The most often it is treated as coherent with ethics of a sustainable development. He formulated the ecological imperative "Act so that the effects of your action are compatible with the permanence of genuine human life" - Be aware of the responsibility for the consequences of their own actions. In this sense it is understanding of sustainable development regards the possibility of satisfying the needs of the present and, at the same time, maintaining a healthy, safe, livable and ready for existence, environment for future generations. It is about creating spaces of life, that are both ecologically compatible and economically acceptable and that give maximum priority to the needs and interests of users. In the hygienic-sanitary spaces, as in other areas of our life, sustainability is not just about ecology and economy but it is also based on psychological, social and cultural factors, such as health and the comfort and social interaction of the respective users. Sustainable development is based on a holistic view of the ecological, economical and social impact of the material environment on man and nature [1].

Sustainability applies to the materials, devices and installations used in the bathroom, their sustainable design, construction and production methods that enable sustainable use. It means the economical use of resources, lightweight construction, minimizing energy consumption and emissions, the ability to return built components to natural or technical cycles, namely the possibility of dismantling or disassembly phase, or the ability to identify the used materials at a later stage as a necessary prerequisite for reintroducing them into biological or technical cycles so that nothing is lost [1].

Some objects and forms last longer and have a longer appeal. But ongoing study and search for optimum solutions the sustainability turns out not to be a matter of chance. It is decided in advance, from the outset, at development. Designers and producers focus on water-saving and energy-efficient solutions, environmentally-friendly manufacture, timeless forms that retain their appeal for years and simple product assembly [1].

## **3. Sustainability in bathroom design**

"Good design" in the bathroom is not just about looks but equally or maybe above all about functionality, practicality and sustainability. Therefore, it is important to develop and offer sustainable forms without an expiry date, timelessly modern forms for all bathroom products and ranges rather than following fashion trends.

A well-known sanitary company, Duravit, and designer Philippe Starck have gone back to the beginnings of hygiene, body care and wellness with the products of Starck 1 range. This collection describes bathroom history and the evolution of the bathroom equipment: the washbasin, bathtub and toilet are clearly descended from their historical ancestors - the washbowl, tub and bucket - even though they have been perfectly reinterpreted (see Fig. 1). A simple water bucket was sufficient to inspire Philippe Starck to design this classic bathroom collection indicating

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