

SICK BUILDING SYNDROME PHENOMENON AWARENESS

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К ВОПРОСУ О ФЕНОМЕНЕ СИНДРОМА БОЛЬНОГО ЗДАНИЯ

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***Аннотация.** В данной работе авторы исследовали осведомленность студентов Томского политехнического университета, старейшего университета Западной Сибири, о феномене Синдрома Больных Зданий. Главный корпус университета был построен в 1896-1902 годах, другие двадцатью – тридцатью годами позже. Естественно, что почти аудитории университета отремонтированы и оформлены с использованием современных синтетических материалов, которые могут вызвать Синдром Больного Здания.*

Introduction

Today, most people in developed and developing countries spend 90% and 70% of their time indoors and for this reason increasing attention is being paid towards understanding this fact since it is known its impact on human health. It should be noted that the material and the microclimate of modern buildings are quite different from the buildings in which previous generations lived.

On the one hand, health problems are the result of damp, cold, drafts, lack of sunlight almost disappeared. On the other hand, new health problems are caused by toxins, radiation, and electricity.

New materials, new designs, new standards have brought a whole new problem. For example, it was found that the gases given off by paint, plastic, wood chipboard considerably poison indoor air and cause Sick Building Syndrome.

Until the mid-20th century, the basic structure of the building materials was as follows: 30-40% had an organic origin; 60-70% has inorganic origin (but natural stone, brick, lime). Most modern buildings (90-100%) are constructed of artificial and synthetic materials. Synthetic materials are cheap, but they can be unsafe for health.

However, people rarely think about the safety of buildings, their study and workplaces. At the present time, environmental security of residential and non-residential buildings is an important factor of our health.

In the world there is such a thing as Sick Building Syndrome. Sick building syndrome is the title given to the phenomenon when people who regularly stay in a building (like office workers, students) experience various troublesome symptoms, mainly when they spend much time there. The symptoms tend to be flu- or allergy-like,

and may include headaches, burning or itching eyes, stuffy nose, sneezing, coughing, sore throat, tight chest, dry or itchy skin, dizziness, difficulty concentrating, nausea and fatigue.

Sick Building Syndrome is disputatious because it's difficult to definitively link the wide range of symptoms people experience to a recognized illness, or to identify a specific cause [1]. Currently, the issues of SBS are often discussed. Scientists have carried out national and international studies to investigate the phenomenon of SBS and its causes [2, 3, 4, 5].

The causes of SBS can be attributed to inadequate ventilation, chemical contaminants from indoor or outdoor sources, as well as biological contaminants. Sick building syndrome is mostly caused by materials used for building houses.

The aim of this paper is to investigate the awareness Tomsk Polytechnic University students about the phenomenon of Sick Building Syndrome and its causes.

Method

During the study the authors used survey method to analyze engineering students' Sick Building Syndrome awareness and Sick Building Syndrome causes.

Process

Being the oldest engineering university in Siberia, nowadays, Tomsk polytechnic university is a highly developed infrastructure of academic buildings and laboratories. There are 21 buildings in TPU. The main university building was constructed in 1896-1902, others in 20 years and later. Undoubtedly, the majority of offices and classrooms were renovated: interiors were changed according to the spirit of the contemporary time and technological advances. Nevertheless, the use of synthetic materials, the rooms' layout, space and light can't be always changed in accordance with hygienic demands and might cause SBS.

The research was carried out on total 68 first year students of Institute of Non-Distractive Testing who have provided the subjects of this study. The students who participated in the survey answered the following questions:

- 1) Have you ever heard about Sick Building Syndrome?
 - a) yes (28%);
 - b) no (72%);
- 2) What are the problems that are correlated with the time spent at a particular university building you have ever experienced?
 - a) headache (26%);
 - b) dizziness and nausea (18%);
 - c) dry or itchy skin (12%);
 - d) respiratory infections (24%);
 - e) eye, nose, or throat irritation (14%);
 - f) dry cough (19%);
 - g) difficulty in concentrating (27%);
 - h) fatigue (37%);
 - i) sensitivity to odors (16%);
 - j) none (25%);
- 3) Did you ever hear others complain of having the same symptoms at the same time and in the same place?

- a) yes (54%);
- b) no (46%).
- 4) Which in your opinion is the main cause of the Sick Building Syndrome?
 - a) indoor air pollution (34%);;
 - b) poor ergonomics (15%);
 - c) chemical contamination (65%);
 - d) biological contamination (43%);
 - e) building materials and design elements (54%).

Conclusions

Thus there is no doubt that Sick Building Syndrome is a worrisome phenomenon. Sick building syndrome is a broad notion that covers a range of symptoms when the sufferer spends time in a particular building. Symptoms range from specific symptoms such as headache, dizziness and nausea, dry or itchy skin, respiratory infections, eye, nose, or throat irritation, dry cough to more vague symptoms such as difficulty in concentrating, fatigue; sensitivity to odors.

In the process of this study, the authors found out that the majority of students, unfortunately, are not aware of this phenomenon the existence. Analysis of the survey results revealed the following: respondents reported that the main causes of Sick Building Syndrome, in their opinion, were the building materials and design elements. All these data should be taken into account by modern architects, building companies, engaged in the construction industry.

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