

**DEVELOPING A CORRELATION BETWEEN INDOOR
AIR QUALITY AND SICK BUILDING SYNDROME IN
APARTMENT BUILDINGS**

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DECLARATION

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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ABSTRACT

Sick Building Syndrome (SBS) is currently a widely discussed topic all around the world since most of the population spend majority of their time indoors. However in Sri Lanka, there is less discussion on SBS. Among the contributory factors for SBS, polluted air plays a leading role while aggravating the situation with poor ventilation. In order to assess the magnitude of SBS prevail in Apartment buildings in Sri Lanka, a field study was carried out placing the focus on Total Volatile Organic Compounds (TVOC) and Carbon Dioxide (CO₂) concentrations. A series of measurements were taken on selected Indoor Air Quality (IAQ) parameters in a sample of apartment buildings located close to a main highway. The IAQ monitoring was coupled with a questionnaire survey on SBS symptoms, building operational practices and other related parameters. The results of the study revealed that IAQ parameters could correlate with SBS symptoms at different significant levels. Moreover, poor ventilation had been identified as a prominent contributory factor for substandard air quality which in turn would result several SBS symptoms. The results of this research will be benefited to Engineers, Architects, Developers, and general public.

Key words: SBS, IAQ, CO₂, TVOC, Symptoms

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LIST OF ABBREVIATIONS

Abbreviation	Description
SBS	Sick Building Syndrome
VOC	Volatile Organic Compounds
TVOC	Total Volatile Organic Compounds
CO ₂	Carbon Dioxide
IAQ	Indoor Air Quality
IEQ	Indoor Environmental Quality
WHO	World Health Organization
BRI	Building Related Illness
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
GBCSL	Green Building Council of Sri Lanka
ppm	Parts per Million
ppb	Parts per Billion