**CIVIL ENGINEERING EDUCATION IN NIGERIA.**

**DESIGNING OF INNOVATIVE AND AUTOMATED RESPIRATORY BUILDINGS FOR PATIENTS AND HEALTH WORKERS AGAINST COVID-19**

**PREPARED BY**

**GIME WELSAID ADOGU**

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**ABSTRACT**

This work examines the design of automated and innovative respiratory buildings for patients and health workers against the corona virus and a brief information and summary about the virus – the sign and symptoms as well as the preventive measures.

**INTRODUCTION**

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARSCoV-2). The disease was first identified in December 2019 in Wuhan, the capital of China’s Hubei province, and has since spread globally, resulting in the ongoing 2019-20 coronavirus pandemic. Those infected with the virus may be asymptomatic or develop flu-like symptoms, including fever, cough, fatigue, and shortness of breath. Emergency symptoms include difficulty breathing, persistent chest pain or pressure, confusion, difficulty waking and bluish face or lips; immediate medical attention is advised if these symptoms are present. Less commonly, upper respiratory symptoms, such as sneezing, runny nose or sore throat may be seen. Symptoms such as nausea, vomiting and diarrhea have been observed in varying percentages. Some cases in China initially presented only with chest tightness and palpitations. In March 2020, there were reports indicating that loss of smell may be a common symptom among those who have mild disease, although not as common as initially reported. In some, the disease may progress to pneumonia, multi-organ failure and death. In those who develop severe symptoms, time from symptoms onset to needing mechanical ventilation is typically eight days.

The virus is mainly spread between people during close contact, often via small droplets produced during coughing, sneezing, or talking. While these droplets are produced when breathing out, they usually fall to the ground or onto surfaces rather than being infectious over large distances. People may also become infected by touching a contaminated surface and then their face. The virus can survive on surfaces for up to 72 hours. It is most contagious during the first three days after the onset of symptoms. Reports indicate that not all who are infected develop symptoms, but their role in transmission is unknown. Preliminary evidence suggests asymptomatic cases may contribute to the spread of the disease. The proportion of infected people who do not display symptoms is currently unknown and being studied.

The World Health Organization (WHO) declared the 2019-20 coronavirus outbreak a Public Health Emergency of International Concern (PHEIC) on 30 January 2020 and a pandemic on 11 March 2020. Local transmission of the disease has been recorded in many different countries across all six WHO regions.

**LITERATURE REVIEW**

Air quality and thermal comfort are crucial for any building. On a warm day, the benefits of natural ventilation is obvious – bountiful amounts of fresh air and a connection with nature. Breathing buildings are taking every precautions to protect the health and safety of the workforce during the COVID-19 pandemic.

While recirculating air has become the default in our buildings, ventilating with outdoor air is vital to diluting airborne contaminants and decreasing the disease transmission rate. It goes without saying that healthy buildings play a central role in creating healthy world.

**ANALYSIS OF RESULT**

Ventilation plays a vital role in the design of innovative and automated respiratory buildings for patients and health workers against the coronavirus disease outbreak.

Breathing buildings are to use efficient centrifugal fans to achieve a hybrid mixing ventilation in a small form-factor product. The design works with opening windows to assist and augment a predominantly natural ventilation strategy- thereby enabling a low-energy solution which works all year round, and can be used reliably in single-sided rooms. Very few modern buildings are purely naturally ventilated. From the humble kitchen or toilet extract fan, to the grandest of air handling units, all buildings have some form of mechanical ventilation. In the same way, all well-designed buildings will also have a natural ventilation with low-supply, high-level extract, mechanical ventilation with open-able windows, or separate zones with natural and mechanical ventilation working independently.

As sustainable civil engineers, we all want to design a low or zero-energy buildings.

**METHODOLOGY**

In this report, there are few main objectives. This just one step which can be used to accomplish the objectives. The inductive approach is used in the report.

Firstly, finding out the keywords of the report topic, it is necessary to read some books, journals, periodicals and articles from library and websites. People could understand the concept for the strategies used for resolving issues in civil engineering contracts.

Secondly, according to the knowledge, author could define concepts, understand different opinions from different writers and analyze the different opinions.

Thirdly, after studying and pondering, authors expounded their own ideas of the topic.

**CONCLUSION**

The coronavirus is a deadly virus, wash your hands with warm water regulary or make use of an alcohol-based hand sanitizer and we must all try to stay safe and obey the government decision for a total lockdown.

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