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KEMENTERIAN HUKUM DAN HAK ASASI MANUSIA

# SURAT PENCATATAN CIPTAAN

Dalam rangka perlindungan ciptaan di bidang ilmu pengetahuan, seni dan sastra berdasarkan Undang-Undang Nomor 28 Tahun 2014 tentang Hak Cipta, dengan ini menerangkan:

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Judul Ciptaan : **Strategy To Reduce The Covid-19 Transmission Through Adaptation Of Greenship Interior Space Criteria**

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DIREKTUR JENDERAL KEKAYAAN INTELEKTUAL



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## INTRODUCTION & LITERATURE REVIEW

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### Introduction

The Coronavirus (COVID-19) is an infectious disease that has a global effect in recent decades. [1]

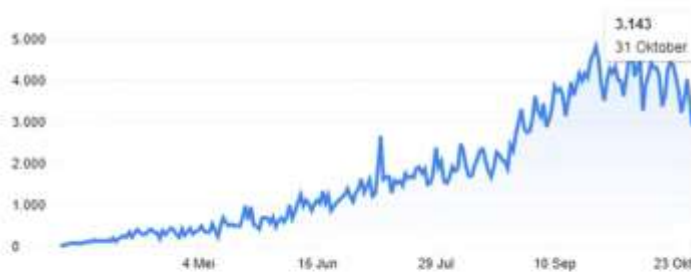


Figure 1. New cases of Covid 19 in Indonesia

The importance of good indoor environmental quality has been prioritized by the current pandemic, as 70-90% of people's time was spent in an indoor area [3] during the pandemic the duration of time spent also increase.

GreenShip Interior Space parameter issued by GBCI can be used as a reference to create a good indoor environmental quality

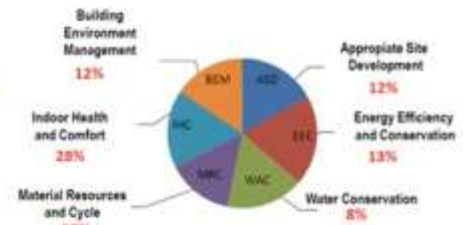


Figure 2. GreenShip Interior Space Rating Tools [2]

This research aims to propose an adaptation of the GreenShip Interior Space criteria based on pandemic conditions.

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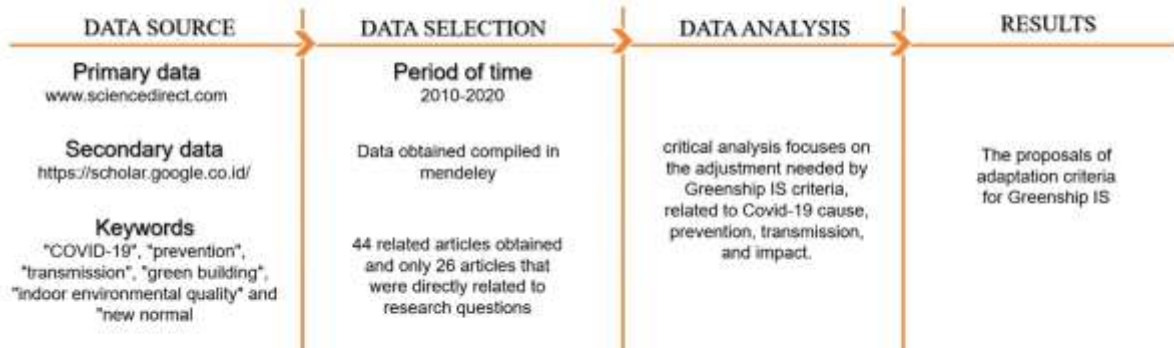
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## METHODS

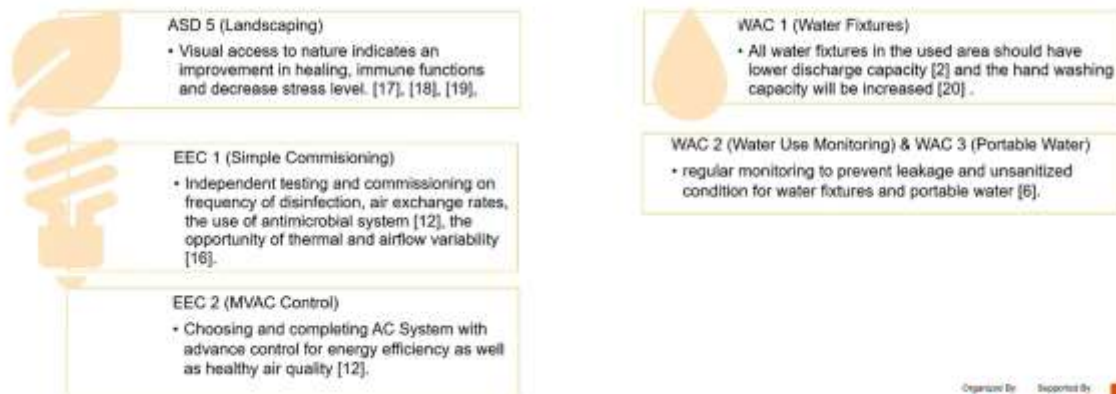
This study present a literature review of Greenship Interior Space adaptation, regarding pandemic conditions.



## FINDINGS AND DISCUSSION

### The Adaptation Strategy of Greenship Interior Space

the criteria of Greenship Interior Space are studied based on cause, preventive, and reduce virus transmission strategy to obtain a proposal of adjustment, adaptation of the Greenship IS criteria.



**MRC 4 (Low Environmental Impact Material)**

- The need for additional criteria material selection, antimicrobial material & hard wearing for high contact surfaces [6] [21]

**MRC 5 (Green Cleaning agent)**

- The use of environmentally cleaning product to disinfect the room. [12]

**BEM (BEM P+BEM 1-4)**

- Planning additional activities including training, education, and operational activities so that activities in the building are not only sustainable but also consider to health criteria.

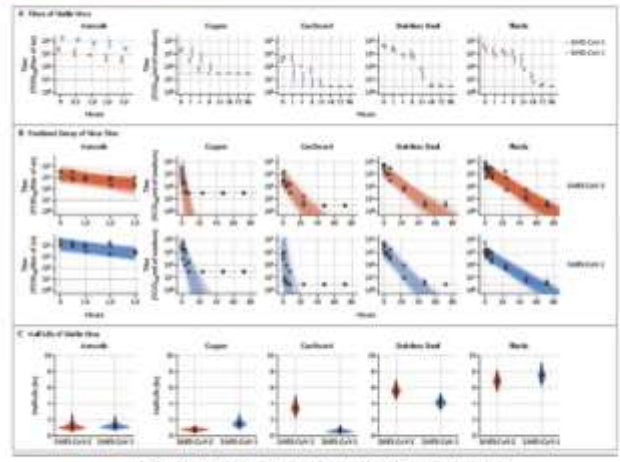


Figure 3. Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1[5]

**IHC 1 (Outdoor air introduction) & IHC 2 (Co2 Monitoring)**

- For central AC, increasing outdoor air exchange rates (6-12 room air changes every hour) [10], close recirculation damper and maximize the outdoor air [22]. Reducing the number of occupancy in a closed space by 50%. [22]

**IHC 5 (Biological Pollutant) & IHC 8 (Thermal Comfort)**

- The need of regularly air disinfection methods (using a filter, UV light, and other devices for disinfection [12] [22] and relative humidity 30-50% to decrease mold growth

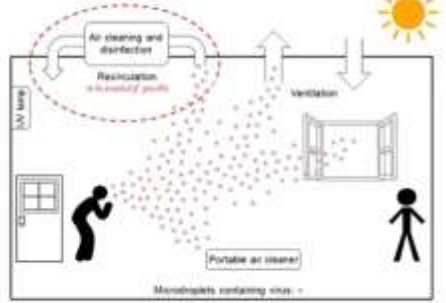


Figure 4. Strategy to reduce airborne transmission [22]



Figure 5. Upper room GUV [23]

**IHC 7 (Outside view and daylight) & IHC 10 (Interior Plants)**

- Built-in green wall technology can improve quality and health index in the indoor building environment [25]. [26] Natural light also to provide vitamin D that is needed for human metabolism. [16]





## CONCLUSIONS



The proposal adjustment of GreenSHIP Interior Space criteria shows the importance of human health as a priority that needs to be achieved in addition to sustainability.

GreenSHIP IS categories	Criteria	Adjustment	
Indoor Health and Comfort	1P IHC + 12 IHC criteria	7 criteria adjustment	→ Focused on creating good indoor air quality
Building Environment Management	1P BEM + 4 BEM criteria	4 criteria adjustment	
Energy Efficiency and Conservation	1P EEC + 5 EEC criteria	2 criteria adjustment	→ Focused on maintaining health protocols and routine disinfection through operational and maintenance activities by building management and occupants.
Water Conservation	1P WAC + 3 criteria	3 criteria adjustment	
Material Resources and Cycle	2P MRC + 7 MRC criteria	2 criteria adjustment	→ Focused on the selection of materials antimicrobial material & hard wearing for high contact surfaces
Appropriate Site Development	1P ASD + 5 ASD criteria	1 criterion adjustment	→ Focused on natural elements through the landscape to increase immunity, and reduce stress levels



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