

The importance of maintenance during the COVID-19 pandemic

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1. INTRODUCTION

How can we talk about cleaning, sanitizing, preventive actions, personal safety, improvements, and any other anti-COVID-19 measures impacting the safety of equipment and people – and not mention maintenance? It's like playing a card game without any aces. It's possible, but it's just not the same.

After all, what do we really know about COVID-19, coronavirus or SARS? The coronavirus, or rather SARS-CoV-2, is the disease better known now as COVID-19. It was first discovered in December 2019 in Wuhan, China.

Coronavirus... *"belongs to the Coronaviridae family of viruses that can infect humans, other mammals (including bats, camels & civets), and birds..."* [1]

SARS-CoV-2... *"is the name of the new virus, short for 'Severe Acute Respiratory Syndrome – Coronavirus-2.' There is already another form of coronavirus that causes this severe acute respiratory syndrome identified in 2002, called SARS-CoV, hence the new coronavirus is named as SARS-CoV-2.* [1]

COVID-19... *"(coronavirus) is the name of the disease itself and stands for 'Coronavirus Disease', alongside '2019' which was the year of its discovery...The World Health Organization gave the disease this name to link it to the new SARS-CoV-2 coronavirus."* [1]

2. TRANSMISSION & INCUBATION

One of the common questions with this disease is: how do people become infected with COVID-19? In other words, how is the disease transmitted?

According to current data, the virus is spread when someone is in close contact with an infected individual. It is transmitted when small droplets exhaled from an infected person's mouth and nose when they speak, sneeze or cough reach the mouth, nose or eyes of others. If you are within 2 meters of an individual with the virus, then there is a strong possibility of

transmission if these droplets are exhaled by the infected person.

On the other hand, the virus can also spread when objects or any other surface previously in contact with an infected individual are then touched by uninfected people, whose hands then come into contact with their eyes, nose or mouth. This is referred to as indirect transmission.

When it comes to spreading any virus in a confined area, we must bear in mind the potential impact of air conditioning units although, so far, studies have found no evidence that these facilitate the spread of COVID-19.

It is also reasonable to ask whether COVID-19 can be transmitted via food. *"There is no evidence to support the theory that SARS-Cov-2 can be transmitted by food."* [1] Yet it is recommended that one maintains a good level of personal hygiene and takes safety precautions when preparing food.

Regarding self-isolation, although there are reports recommending that a potentially infected individual remains isolated for over 20 days, this period does not need to exceed 2 weeks. In practice, between 2 to 14 days will suffice.

Note: Data has emerged indicating that over 80% of confirmed coronavirus cases are not serious and do not require hospitalization.

3. BEHAVIOUR ON SURFACES

If we do not adopt stricter cleaning measures and disinfect surfaces more regularly, the virus will fester for longer. However, this is dependent upon the surface type and the temperature of the surrounding environment. On a more positive note, this type of virus can become inactive seconds after the host surface is cleaned/disinfected with alcohol, hydrogen peroxide or bleach, all products that can be found easily.

Studies have given us a glimpse into the behaviour of COVID-19 on different types of

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surfaces. The information shared in this chapter is based on studies published by “The Journal of Hospital Infection” [2] and “The New England Journal of Medicine” [3], as well as information publicized by the Portuguese Ministry of Health:

- **Aerosols:** up to 3 hours
- **Plastic:** up to 3 days (packaging, bottles, elevator buttons, remote controls, bells, landline phones, mobile phones, tablets, computers, keyboards, consoles, bags, etc.)
- **Metal:** up to 5 days (door handles, jewellery, watches, glasses, cutlery, handrails, etc.)
- **Card:** up to 24 hours (containers, packages, bags, postcards, envelopes, etc.)
- **Stainless steel:** up to 3 days (refrigerators, pots, pans, cutlery, etc.)
- **Copper:** up to 4 hours (coins, kitchen utensils, etc.)
- **Glass:** up to 4 days (glasses, bottles, windows, mirrors, etc.)
- **Wood:** up to 4 days (furniture, chairs, benches, etc.)
- **Aluminium:** up to 8 hours (tins, cans, aluminium foil, bottles, etc.)
- **Ceramics:** up to 5 days (plates, cups, trinkets, etc.)
- **Paper:** varies between a few seconds and up to 5 days

4. EXPECTED IMPACTS

As with any unforeseen situation, there will always be an inevitable impact, positive or negative, expected or unexpected. In recent weeks, we have constantly been hearing the phrase “nothing will ever be the same”, which is 100% true. However, when we delve deeper into this issue, it begs the question, will things get better or worse? The answer, though, may not be so straightforward. It seems that this will depend on the angle we’re looking at it from.

A recent study by Navaltik on the effect of the pandemic indicated that:

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- 80% of respondents found that their life was turned upside down overnight: telecommuting, changing work schedules, adjusting working patterns, using protective equipment, physical separation from family, friends and colleagues, etc;
- 5% of respondents saw their companies increase turnover by over 50% - congratulations on this extraordinary achievement. Roughly 30% of respondents were unaware of the impact on their company’s turnover. On the other hand, around 50% of respondents found that their company has seen a drop in turnover;
- About 30% of companies have increased investment in their own business through releasing new products or services. Roughly 9% of companies adjusted (reduced) the price of their products or services;
- Teleworking has become the new norm for around 40% of respondents, and with this, there has been a general sense that productivity has increased. For many companies, this has been a necessary measure to prevent employees spreading the virus further, by encouraging them to avoid public transport and crowds. Perhaps this increase in productivity is down to the change in lifestyle becoming necessary rather than an alternative or an inconvenience. I invite you to read the article “Practical tips to make homebased telework as healthy, safe and effective as possible” here: https://oshwiki.eu/wiki/Practical_tips_to_make_homebased_telework_as_healthy_safe_and_effective_as_possible
- More than 30% of respondents have become reliant on online training. There’s nothing like enjoying some free time to work on improving one’s personal and professional development.
- A different study has indicated that the increase in usage of online platforms in

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another new norm for many individuals and companies. 'Everything' is being bought online: flowers, electronics, books, computers, groceries, etc. It is estimated that this industry has seen an increase of 40% in consumption from 'new clients'.

I invite you to reflect on the following:

- COVID-19 will act as a 'time machine' that pushes us to speed up changes that were probably already in the pipeline. However, is it the right moment for this? Again, we are highlighting changes such as teleworking, education and training in isolation, online purchasing and entertainment, virtual visits to museums etc., as well as the discoveries of new business niches and modes of sustainability;
- Is COVID-19 *the* power shifter for industry 4.0 ie gathering information about the state of equipment remotely? Telemaintenance?
- Will COVID-19 be seen as the 'invisible hand' that brought a breath of fresh air to the environment, leading to the closing of the hole in the ozone layer, reducing pollution, cleaning the skies and the seas?
- Will COVID-19 be *the* motto that signifies the belief that it is possible for us to adopt and maintain new behavioral habits?

Do these questions represent our new norms and realities, or when everything begins to stabilize will we return to life before the virus? What can we learn from this?

5. FROM "POOR RELATIVE" TO HERO?

In general, we only remember certain moments when an unexpected event occurs. With that, when would we think about the importance of having lighting at our workplace, or at our home? Whenever there's a power cut, or the fuse has blown. When do we remember the necessity of water in our lives? If we're going to

take a shower, or simply drink a glass of water, and when we go to turn on the water system nothing comes out. There are many more examples illustrating that we only remember something important to us when we don't have it. This is a very normal scenario for human beings, to value something only when we no longer have it. However, during this pandemic, which types of people have been called upon the most? Maintenance personnel, firefighters etc. These are the ones that are helping the most to disinfect areas; change the layout of our shared spaces to reinforce social distancing rules set by the authorities; design new pathways to help civilians avoid close contact with others; perform job risk assessments; guarantee that equipment continues to run efficiently and without fault; ensure companies comply with maintenance plans and legal requirements when adopting new measures; and keep hospitals running. These key workers, who are putting all their efforts into keeping the world running, should be honored equally for their service. We should highlight the role of maintenance personnel as well.

Navaltik recently carried out a study on this article's theme that provided us with the following data:

- 95% of companies adopted new measures to counter the pandemic;
- 67% of respondents considered the role of maintenance in preventing the spread of COVID-19 to be of high importance;
- The main preventative measures taken by most of the companies were the adoption of: masks (90%), visors (52%), gloves (59%), anti-bacterial hand gel (95%), and cleaning equipment and regular disinfection of the workplace (78%). Other measures taken included training on how to prevent spreading the virus (35%), alterations to factory layouts (22%), and installation of acrylic partitions between workstations (35%);

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- 90% of companies considered it important to calculate the costs of these new measures, but only 38% claim to have actually done so;
- Approximately 85% of respondents found it important to centralize all these preventative measures on a computer
- If they were to return to their workplace today, 78% of respondents would trust these preventative measures their company has taken
- Regarding the question of “Which measures do you think your employer can adopt to make you feel even safer in the workplace?”
 - Most responses were in accordance with Directorate-General of Health (DGS) requirements
- However, these additional measures were proposed:
 - A risk analysis to be taken according to function/category, and measures and procedures to be established for these various functions/categories
 - Creation and implementation of a procedures manual
 - Monitoring and assurance that the company is complying with its own guidelines
- Cover your mouth and nose with a tissue or your forearm when you sneeze or cough, and throw the tissue in the trash;
- Avoid touching your face (especially the eyes, mouth and nose) with your hands;
- Maintain a social distance of at least 2 metres when indoors;
- Avoid sharing personal items or food;
- Any clothing or uniforms should be washed at temperatures exceeding 60°C if that individual has shown symptoms of COVID-19 i.e. they are a confirmed case. Alternatively, you can disinfect the laundry using the appropriate substances depending on the type of fabric/material to be washed;
- Maintain an air flow in spaces that are usually closed off. Open windows or doors that allow the circulation of fresh air into indoor spaces;
- Widespread use of face masks and/or visors, or goggles;
- Clean and disinfect surfaces regularly, 2 to 3 times a day:
 - **Cleaning:** removes remaining matter on the surface that improves conditions for microorganisms;
 - **Disinfection:** kills microorganisms

6. GENERAL PREVENTIVE MEASURES

My recommendation, as a maintenance consultant, has always been to invest in preventative measures, based on indications shown by manufacturers, suppliers and others, alongside my own experience. There is an old Portuguese saying that is still relevant today:

- Wash your hands frequently (with soap and water, or with an anti-bacterial solution with 70% alcohol), especially when you blow your nose, sneeze or cough, or if you have been in direct contact with an sick person;

- **Bleach:** The solution to use when disinfecting surfaces. Dilute 1 measure of bleach with 99 measures of water
- **Ethyl alcohol [70% (60-80%)]:** These solutions are considered to be the most effective method for killing coronavirus on hard surfaces. Dilute 7 measures of alcohol in 3 measures of water. Note: 96-98% of alcohol solutions are less effective because of rapid evaporation, enabling the microorganisms to

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- stick to their host surface rather than being removed;
- **Hydrogen peroxide [3% or 10 volumes]:** Effective in destroying coronavirus. The commercially sold hydrogen peroxide that one can find at home must be diluted to a concentration level of 0.5%. Dilute 60ml of hydrogen peroxide in 240ml of distilled or regular water;
- **Note:** Do not dry surfaces immediately after disinfecting them because this process will only be effective if the air dries these surfaces.
- Clean electronic screens, keyboards, remote controls, mobile phones, tablets, etc., preferably using alcohol-based disinfectant wipes or anything similar to this, otherwise a spray comprising a minimum of 70% alcohol will suffice. Let surfaces dry naturally to prevent the accumulation of different liquids.

7. SPECIFIC PREVENTION MEASURES IN BUILDINGS

The goal of this chapter isn't to leave you with an excessive number of maintenance duties to undertake. Rather, it is to offer some guidelines and suggestions for you to think about. You can find more information at

<https://manwinwin.com/en/w-prep/> which is where we share our knowledge on the issue. Go to the 'Object Type' column under the "AAA – Base Model | Extra" type

Some of the 'Federation of European Heating, Ventilation and Air Conditioning Associations' recommended practices and advice for operating building systems are as follows:

- Increase inflow and outflow of air
- Increase ventilation through windows
- Safe use of heat recovery ventilation system
- Any additional cleaning of ducts is unnecessary practice

- Replacement of external filters isn't required
- Air purifiers are useful in certain situations

Moreover, alongside the recommendations proposed by the Portuguese National Tourism Institute will award the 'Clean & Safe' seal to any company abiding by these regulations, as a recognition of the high internal hygiene protocols that have been maintained to avoid the risks of spreading the disease.

8. CONCLUSION

The COVID-19 pandemic has reshaped the way the world works, forcing us to adopt new lifestyles, even for those who may appear indifferent to all that is going on. The current figures we're seeing are showing us that we may never return to 'normal life', which is somewhat alarming. There are obvious lessons that we can learn from all the challenges that have been placed in front of us. We should highlight the role of maintenance activities and personnel in preventing the spread of the virus; it is these people who will be crucial in ensuring that essential services and equipment continue to operate smoothly (hospitals, industrial buildings, sports complexes, etc.). Crucially, each of us too has a key role to play in this fight: we must follow guidelines and act responsibly. We need to keep our minds strong and healthy. Stay safe!

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