The SARS-CoV-2 virus (the COVID-19 pandemic) has disrupted the way of life of nearly every person in the world. Practices that may have once been overlooked - such as the cleaning methods used in homes, offices, schools, and public spaces - are now widely-discussed topics regarded as essential measures to protect against the COVID-19 virus and ensure the health, safety, and well-being of all those who interact with the built environment.

As a novel virus, little was known about the characteristics of SARS-CoV-2 including effective methods for cleaning, disinfecting, and protecting against different pathways of transmission. This confusion resulted in a wide-scale transition back to traditional cleaning practices and the use of commercial cleaning products - many of which contain harsh chemical ingredients with known toxicity for human health and the environment.

Green cleaning, a practice established over 20 years ago, is a safe and effective alternative solution for eliminating the COVID-19 virus. While the situation is constantly evolving, there is now a breadth of information from organizations like the CDC and NIH on best COVID-19 cleaning practices that not only rid spaces of the virus, but also protect the health and well-being of those who occupy the spaces.
Why is Green Cleaning Important?

Health Hazards of Traditional Cleaning Practices

There are many ingredients in traditional cleaning products that are heavily-researched and thought to be hazardous to human health. For building occupants, facilities, and custodial staff who may frequently handle or experience prolonged contact with cleaning products, these adverse effects can become more pronounced and, in some cases, cause or exacerbate chronic health conditions.

Respiratory Health. The U.S. Environmental Protection Agency has identified several chemicals that are often associated with irritation of the nose, eyes, throat, and lungs. These cleaning products - most commonly aerosols, air fresheners, chlorine bleach products, furniture, and floor polish - can contain volatile organic compounds (VOCs), ammonia, bleach, and citrus fragrances; all which have been associated with triggering asthma attacks, allergic reactions, headaches, and other respiratory illnesses. (American Lung Association).

Endocrine Disruption. Endocrine disrupting chemicals like phthalates and BPA, or chemicals that can disrupt hormone production and regulation, are also commonly found in traditional cleaning products. (NIH).

Skin Irritation. Contact dermatitis, burns, and rashes are commonly associated with cleaning products with high concentrations of bleach, alcohol, chlorine, ammonia, fragrances, and others. (NIH).

The Green Health Partnership.

Founded in 2013, the Green Health Partnership (GHP) is an academic research and development group between the University of Virginia School of Medicine and the U.S. Green Building Council with funding from the Robert Wood Johnson Foundation. GHP utilizes the green building movement as a platform and blueprint for creating a self-sustaining, scalable market for health promotion within the real estate industry.

Environmental Risks of Traditional Cleaning Practices

While public health is the focal point of the COVID-19 pandemic, many building practitioners and facilities managers are still admirably committed to promoting and maintaining environmental sustainability within their spaces. In addition to the adverse human health effects, traditional or commercial cleaning products also pose a variety of adverse environmental effects.
Water Pollution. Cleaning chemical runoff from drains and pipes can lead to pollution of streams, rivers, lakes, and (on a larger scale) groundwater. This pollution can contribute to harmful algal blooms and pose a threat to plant and animal life. (EPA).

Waste Production. Because hazardous materials have specific disposal and transportation requirements, many containers used by commercial cleaning companies are not recyclable. These (usually plastic) containers wind up in landfills and offset the waste stream. (EPA).

Green Cleaning and the COVID-19 Virus

Built environment practitioners, facilities staff, and maintenance personnel should follow CDC guidance to develop their cleaning plan and determine what needs to be cleaned throughout their workplaces, schools, homes, and public spaces. Current best cleaning practice suggestions from the CDC and EPA include:

**Developing a Plan.** Use the available guidance information to determine which areas and surfaces need to be cleaned, how they will be disinfected, and how often they need to be cleaned. Every type of space and population will have unique cleaning needs. This is the ideal time to research green cleaning products that are still effective against the COVID-19 virus and ensure that all personnel have appropriate PPE.

**Implementing the Plan.** Once a plan has been established, clean and disinfect spaces with chosen products. Always be sure to thoroughly clean visibly dirty surfaces with soap and water, high touch surfaces, and highly-trafficked areas. Be sure to follow any directions on product labels.

**Maintaining and Revising the Plan.** Continue cleaning and disinfecting the space as determined in plan development and implementation. Maintain practices of wearing face coverings, hand washing, and social distancing. As new information about the virus and appropriate prevention methods are updated, revise the cleaning plan as needed according to CDC and NIH guidance.
While cleaning is essential for the elimination of the COVID-19 virus, many commercial cleaning products contain chemicals that may compromise indoor air quality or leave occupants susceptible to other toxic substances. As the virus most notably compromises respiratory health through symptoms like coughing, congestion, shortness of breath, and difficulty breathing, it is imperative that chosen cleaning products not contribute to the same adverse health effects as the COVID-19 virus or leave occupants and staff more vulnerable to respiratory distress. For more information on environmentally preferable products and the COVID-19 virus, see the “Helpful Resources and Guidance” section below.

**Helpful Resources and Guidance.**

The following resources provide information on the benefits of green cleaning and environmentally preferable products. These resources may also help individuals and organizations select the products and strategies most appropriate for their unique situation.

- **Cleaning and Disinfection for Households.** This CDC guidance on cleaning and disinfection strategies is specifically geared toward household cleaning techniques, but also provides valuable information on the difference between cleaning and disinfection, the proper method of removing the COVID-19 virus on porous and non-porous surfaces, electronics, and laundry.

- **Cleaning Supplies and Household Chemicals.** This information from the American Lung Association illustrates the connection between traditional cleaning supplies and respiratory illnesses like occupational asthma.

- **EPA Guidance for Cleaning and Disinfecting Public Spaces, Workplaces, Businesses, Schools and Homes.** This EPA resource released in April 2020 contains guidance for cleaning and disinfecting in light of the COVID-19 pandemic. Intended for anyone who wishes to promote safety and cleanliness within a built environment space, these guidelines offer strategies for developing, implementing, and maintaining a cleaning plan.

- **EPA Safer Choice.** EPA Safer Choice is a cleaning product certification that helps consumers and businesses find products that contain ingredients safer for both human health and the environment and that perform as well as traditional cleaning products.

- **GreenSeal Certified Products & Services.** GreenSeal is a cleaning product certification that helps consumers identify greener and healthier cleaning products and services. This resource is a database of GreenSeal certified products and services.

- **List N: Disinfectants for Use Against SARS-CoV-2 (COVID-19) | US EPA.** US Environmental Protection Agency list of approved chemicals for the disinfection of the COVID-19 virus. It is important to note that these approved chemicals are not necessarily “green” and practitioners should use discretion when deciding what products to utilize.

- **USGBC LEED Safety First: Cleaning and Disinfecting Your Space.** One of the new LEED Safety First pilot credits outlining appropriate measures for cleaning and disinfecting for COVID-19. Also includes information on product selection, personal protective equipment (PPE) and training.

- **WELL Standard Feature X09.** This WELL rating system standard helps built environment practitioners understand the importance of using green cleaning products and restricts the use of hazardous chemical ingredients for use by maintenance personnel.