HOW WILL THE SKIES STAY CLEAR WHEN WORK RESUMES?
The corporate real estate community stepped up to respond to the challenges posed by COVID-19 through CoreNet Global’s Hackathon. The virtual ideation experience drew more than 1,000 real estate-related professionals from 35 countries to participate in 122 teams to develop collective solutions that go beyond the immediate crisis response — and help ensure the long-term health and well-being of citizens, companies and communities.

This report is a summary of one of six topics addressed in the hackathon. To see the full team reports for each topic, visit: www.corenetglobal.org/hackathonresults

The Challenge

A hackathon, by definition, is a group of individuals convening to solve problems collectively and within a short, defined period of time. Teams were formed and participants convened for a period of less than three weeks during April/May to ideate and explore what comes next in the following key areas:

5. Environment and Climate Change
Climate change, environmental degradation, and the growing prevalence of historic wildfires and catastrophic flooding, for example, pose major challenges to our world. Business as usual is no longer acceptable. The built environment — coupled with daily commuting and how and where we work — is a major contributor to climate change. How can corporate real estate professionals take a leadership role in helping their companies solve what is becoming an existential crisis? Will there be a lasting impact of the COVID-19 lockdown and forthcoming health and safety protocols and practices on the environment and climate change?

Challenge: Develop forecasts and key recommendations for corporate real estate professionals that address how the pandemic — and the built environment’s response to it — will impact climate change going forward.

Disclaimer
All opinions expressed by hackathon teams and their members are the opinions of those teams and do not necessarily reflect the opinions of CoreNet Global, Inc. and its affiliates, board members, officers, employees, or contractors (“CoreNet”). The hackathon teams’ opinions are based upon information they consider reliable, but CoreNet Global cannot warrant completeness, accuracy or if based on freely available content. Any views or opinions are not intended to malign any religion, ethnic group, club, organization, company or individual. CoreNet reserves the right to remove, edit, or modify any content, at its sole discretion, for any reason or for no reason without notice.”

To review CoreNet Global COVID-19 Hackathon team reports in full, visit www.corenetglobal.org/hackathonresults
To review CoreNet Global COVID-19 Hackathon team reports in full, visit www.corenetglobal.org/hackathonresults
Introduction

An April article on the website Quartz during the height of the pandemic shutdown showed that in New Delhi, the India Gate war memorial was clearly visible from the street due to the lack of everyday pollution that had obscured its view. In Venice, the canals were clear. In Los Angeles, famous for its smog, the skies were blue.

Ironically, in the depths of this tragedy, the shutdown of the pandemic has led to more favorable environmental conditions.

These changes are unquestionably temporary, as so few people are using mass transportation and automobiles, and much of manufacturing is dormant.

But they do provide a window to how conditions can improve permanently once the crisis abates.

The Environment and Climate Change teams examined how corporate real estate professionals can take a leadership role in helping their companies solve what had become an existential crisis. What will be the lasting impact of the COVID-19 lockdown, the new health and safety protocols and practices, on the environment and climate change?
Short Term: The Three Pillars

Key factors that contribute to increased emissions in the built environment stem from community engagement, transportation and commuting, and buildings (design, construction, operations, electricity generation and consumption).

People are at the core of driving these shifts, as our habits directly influence the way in which the world evolves.

Both companies and employees must hold themselves accountable for the impact of direct pollutants and greenhouse gas emissions on our health and habitat.

<table>
<thead>
<tr>
<th>3 Pillars</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Community</strong></td>
</tr>
<tr>
<td>More responsible management of urban growth will be crucial to support sustainable urbanization. As an industry, we should bring our voices to educate policymakers and those involved with updating building codes so that together, we can create new public health requirements.</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
</tr>
<tr>
<td>Transit-oriented development will gain momentum to reduce reliance on cars and long commutes and increase reliance on localized smart solutions. In turn, costs will go down for companies based on a reduction in business travel and subsidized commuter costs.</td>
</tr>
<tr>
<td><strong>Buildings</strong></td>
</tr>
<tr>
<td>The high prevalence of working from home will continue post-pandemic, driving a new perspective on location strategies, energy needs, workplace design, training and education and the desire to avoid enclosed, dense spaces.</td>
</tr>
</tbody>
</table>

Source: Team 4

Community

Responsible management of urban growth will be crucial to guarantee sustainable urbanization.

Corporate real estate managers should seek and maintain an active discourse with experts in public health, sociology, urban design, and public policy to consistently adapt and develop more appropriate building codes that address occupant health and reduce the carbon intensity of the space.

Going further, the real estate community should embrace all levels of environmental justice and ensure that all communities are treated equally and fairly with respect to the environment and COVID-19.

Zoning should be equitable for all populations, and employers should maintain a keen sense of environmental justice and sustainability.

Transportation

Transit-oriented development will gain momentum to reduce reliance on cars and long commutes and increase reliance on localized smart solutions. In turn, costs will go down for companies based on a reduction in business travel and subsidized commuter costs.

Transportation has long been associated with land development and planning and has been dominated by the backing of fossil fuels, which will continue to erode our natural resources and accelerate climate change. This is a cyclical event that drives the growth of our cities in an outward pattern, directly impacting commute times and necessity of single vehicles to reach employment opportunities in larger metropolitan cities.

The return to work phase may see people using more single occupancy vehicle (SOV) vs public transit. As a result, emissions may temporarily spike higher than previous periods.

Business must play a part in reducing emissions. For the short to medium term, we will experience a slow-down in the extent of business travel altering how business operates. Long term, we will see a focus on more transit-oriented development tying together smaller communities within the metropolitan areas with rail lines and replacing SOV commute times, and a live-work-play balance in which people leverage bicycles, walking and electric buses as their preferred means of transportation to and from the office.

Communities and government agencies should incentivize public transit authorities to show a unified ecosystem of safety, health, and sustainability. By prioritizing transparency, we encourage agencies to have better practices, making the roadways more healthy for all.
Buildings

The high prevalence of working from home will continue post-pandemic, driving a new perspective on location strategies, energy needs, workplace design, training and education and the desire to avoid enclosed, dense spaces.

In the near term, reduction in occupancy in commercial buildings may not result in a proportional decrease in waste and water/energy use, nor in cost of occupancy to tenants, as most are committed to lease terms and the related obligations.

As companies shift to more permanent mobility models, investment in technology will increase as will the employee’s personal environmental footprint and utility bills. Net energy and water consumption may increase, particularly in regions that have noticeable seasonal differences. In those areas, residential heating and air conditioning requirements tend to exceed those requirements in commercial buildings. Companies should address this through energy and water efficiency education, partnerships with local utilities to promote residential efficiency programs, and even incentivizing efficiency measures at employees’ homes.

Building owners should explore and invest in smart building technologies that ensure the safety of ventilation systems, water in buildings, and possible technologies such as ultraviolet lighting or filtration and frequency of air exchange and opportunities to automate lighting and HVAC use. The challenge here will be to ensure that higher ventilation rates do not translate to lower energy efficiency.

Developers and building managers will need to think creatively to keep metrics in line, whether through re-commissioning, operation and maintenance changes, efficiency-focused capital upgrades, or a renewed focus on net-zero buildings. In general, forward-looking companies should create estimations and metrics around the energy usage associated with increased home energy consumption and consider them part of their emissions inventory.

It is fundamental to harness the benefits of increasing the performance of buildings we work in. Taking measure of current energy use, setting a benchmark understood as a measure of a building’s Energy Use Intensity (E.U.I.) which calculates the total energy used within the building divided by the building’s area (in square feet). E.U.I. is stated as a number, the lower the better. On average, buildings in the US have an E.U.I. of 68. A high-performance building cuts that by 75% or more.

---

**Long-term**

The Projected Decrease in Office Demand

Workers are not going to return to their offices completely and all at once, which will leave excess real estate that will take time to repurpose and situations for corporate real estate (CRE) executives to manage through several strategies:

---

To review CoreNet Global COVID-19 Hackathon team reports in full, visit www.corenetglobal.org/hackathonresults
• With fewer workers coming into the workspace, morning start up and evening shut down times should be adjusted.
• CRE executives should collaborate with engineering/mechanical/electrical and plumbing to identify ideal locations for employee workstations.
• CRE executives should prepare a plan to permanently repurpose or de-commission certain areas, keeping electrical consumption in mind and juxtaposed to life safety.
• Implementation of IoT solutions for remote monitoring of your real estate and spaces to keep a tight grip on emissions and spend.
• Smaller offices will use less energy in operations. Over time they will also lead to reductions in embedded carbon from equipment, furniture and construction. However, in the short term it is important to note that office space doesn’t just disappear. Excess real estate of perhaps significant proportions means positive environmental impact will not be immediately realized.

Home Work

During the time when more people are working remotely and office occupancy is reduced, there will be an increase in pressure to manage sustainability remotely, which may seem out of the corporate real estate manager’s control:

• Evaluate capital allocated to sustainability and real estate to create financial incentive programs for workers who are interested in incorporating efficiency upgrades into their homes.
• Consider strategies similar to adding EV charging stations at the office and offering preferential parking and free charging as an incentive to purchase an electric car.
• Refer to waste strategies to combat an increase in package waste.

Increase in Water Usage

As people return to the office, there will be increased cleaning and hand washing which will cause a spike in water use.

• Upgrade to low flow and touchless systems at the same time.
• Evaluate rainwater harvesting.

Impact on Commuting

• Encourage environmentally friendly commute alternatives such as walking and biking; take a greater consideration for office locations that may be more convenient for workers to access by foot or bike.

Single Use Everything

Reduce, Reuse, Recycle — a thing of the past? Companies were eliminating single-use consumables before COVID-19 in lieu of reusable silverware, coffee and mugs. As companies and the service industry move quickly to a single use world, some consumables may be unavailable as everyone is attempting to buy the same things.

• Incentive programs to help employees make the right choice.
• Reduction of the consumption of single-use materials by encouraging a work-from-home environment.

Commuting

Remote working will reduce overall commutes and related emissions. According to the Brookings Institution, before COVID-19, over 76% of American drove alone to work every day, while another 9% carpooled, creating a significant portion of the 20% of U.S. CO2 emissions from cars and trucks. Moving 5% of workers to remote would take roughly 6.3 million cars off the road, reducing related emissions proportionally.
Electrical Consumption

The effect of the pandemic on overall energy use is complicated to predict. The Energy Information Administration indicates current energy use by sector as being 32% industrial, 29% transportation, 18% commercial, and 20% residential. The first three sectors have reduced energy use significantly, but residential will increase as consumers spend more of their time at home, increasing use of air conditioning, lighting and appliance use.

Business Travel

Remote working capacity and productivity via video conferencing will replace some business travel, reducing emissions from planes, cars, and other forms of transportation. While impacts on hotels are more complicated to estimate, they will almost certainly reduce both emissions and generation of waste.

Human Behavior

Policies, constraints and forced adaptations experienced since early March have shifted how we are experiencing life, personally and professionally. Many of these new habits are helping our planet and are proving to be sustainable over time.

The world’s largest work from home experiment has facilitated a Master Class in effective virtual meetings. We have learned how to effectively communicate, authentically connect and build relationships and trust through a screen, camera and microphone. This does not mean business travel for some meetings will not return when restrictions are lifted, but it should increase the propensity to conduct virtual meetings.

Human beings produce nearly 300 million tons of waste per year in the U.S. (source: EPA). Remote workers tend to produce much less waste on a daily basis than those in the office. The U.S. EPA estimates that Americans use 69 million tons of paper and paperboard annually. A remote worker, performing digitally-based work, produces significantly less than the estimated 10,000 sheets of paper per year consumed by office workers. We are also less likely to buy and waste excess food and other consumables for our household than we typically do catering meals in the office using company funds. Our waste production rate does not need to increase as we return to the workplace. Being more mindful of how we consume and produce waste will help the environment as well as our expense budgets.

Supply Chain

The pandemic has exposed resiliency issues and product shortages. Significant changes in the supply chain are likely. Managing the environmental impact will be vital.

Amid COVID-19, large financial investors such as BlackRock have recommitted to their climate commitments with greater emphasis on environmental, social and governance (ESG) reporting, and supply chain.

Presently, between 70%-80% of a company’s carbon footprint resides in their supply chain. Per Architecture 2030, materials used in constructing a building will account for 74% of a facility’s CO2 emissions over its lifespan.

Waste

In a post COVID-19 world, there will be an abundance of caution and frequent cleaning and disinfecting. There will be a push toward more cleanable materials on high touch surfaces.

Workspaces will likely be reconfigured to accommodate social distancing, space flexibility, and additional barriers. These changes will likely increase the amount of waste generated.

- Provide training on proper CDC protocols to minimize unnecessary regulated medical waste.

To review CoreNet Global COVID-19 Hackathon team reports in full, visit www.corenetglobal.org/hackathonresults
• Consider using WaterSense-labeled washing machines and Energy Star dryers for laundering microfiber cloths versus using disposables.
• Institute bulk purchasing policies to minimize packaging and maximize loads.
• Negotiate returnable packaging programs with vendors. Disinfectant protocols on returnable packaging can minimize concerns.
• Disinfect durable assets like furniture prior to reassigning, repurposing, or donation.
• Centralize waste and recycling bins for fewer collection and sanitation points.

**Concluding Thoughts**

COVID-19 has and will continue to affect the built environment, both in the way companies operate and how employees behave. To that end, every company must develop key frameworks around resiliency, sustainability, health, and wellness into their design, construction, and operation requirements.

Short-term strategies involve reimagining how and where we work and switching from carbon-intensive energy sources to alternate and renewable sources. Long-term strategies involve innovative research and a fundamental change in our habits towards energy usage. By committing to new ideas and investing to facilitate these ideas into healthy sustainable alternatives, our planet and its people will yield long-term rewards.

Winston Churchill said, “Never waste a good crisis”, and COVID 19’s impact on BAU presents an extremely unique opportunity for business and corporate real estate (CRE) to dramatically change energy, commuting, real estate utilization and other consumption practices as we ramp up “the new normal” moving forward.

During the COVID-19 crisis we have seen families, suppliers, services providers and infrastructure, quickly adapt to a different way of living, consuming, working, collaborating, and volunteering. As we double down on resiliency, business’ commitment to combating climate change should be an integral part of its plans, retaining many of the behavioral changes made during the slowdown.

The COVID-19 crisis has accelerated underlying trends and demonstrates that people are willing to help and make sacrifices to better community, society and public health. This indicates that we have the capacity to combat the climate crisis to move more rapidly to bend the curve on carbon emissions.

To review CoreNet Global COVID-19 Hackathon team reports in full, visit www.corenetglobal.org/hackathonresults
Teams & Participants

Environment & Climate Change – 2
Sponsor: BHDP
Team Lead: Daniel Lessing, BHDP, USA
Team Members:
Anna Buglaeva, Aquicore, DC, USA
Jackson Weaver, Bank of America, NY, USA
Ben Harris, Citrix Systems, Inc., FL, USA

Environment & Climate Change – 3
Team Lead: Sam Pickering, Incendium, United Kingdom
Team Members:
Jochen Heller, Open Society Foundations, Germany
Alex Dinca, Unilever, Romania
Ashraf Ghandour, Seven, United Kingdom
Byron Tudor, Cushman & Wakefield, United Kingdom
Sally Marshall, Turner & Townsend, United Kingdom
Amitava Chakraborty, Cognizant, India
Gloria Mamwa, Standard Chartered Bank, United Arab Emirates
Nora Nemesne Heffler, Signify, The Netherlands

Environment & Climate Change – 4
Team Lead: Christopher Patterson, Uber Technologies, CA, USA
Team Members:
Andrea Wolf, Colliers, Canada
Courtney Ferguson, Oracle, WA, USA
Elaine Aye, RWDI, OR, USA
Gideon Banner, National Grid, NY, USA
Jay Sholl, CBRE, CA, USA
Jennifer Todd, Little Online, NC, USA

Environment & Climate Change – 5
Sponsor: IA Interior Architects
Team Lead: Erik Luken, IA Interior Architects, MN, USA
Team Members:
Jocelyn Rose, Legg Mason, CT, USA
Ron Herbst, Brailsford & Dunlavey, WA, USA
Scott Brideau, Little, VA, USA
Sherry L Carroll, RMW Architecture & Interiors, CA, USA
Thomas Baade-Mathiesen, Altanova, NY, USA
Wendy Rogers, Cushman & Wakefield, MN, USA
Rachel Bannor-Godfrey, Stantec, CO, USA
Paul Hagar, Kellen Company, NY, USA

Environment & Climate Change – 6
Team Lead: Maureen Ehrenberg, WeWork, IL, USA
Team Members:
Philip Donovan, Little Diversified Architectural Consulting, FL, USA
Pradeep Dugar, CBRE, AZ, USA
Mohammad Murtaza, Public Services and Procurement Canada / Government of Canada, Canada
Hunter Fleshood, Comfy, NC, USA
Ross Stackhouse, Tidewater Capital, CA, USA

Environment & Climate Change – Chicago Chapter
Team Lead: Rick Page, MCR, US Bank (former), IL, USA
Team Members:
Lauren Bagull, Allsteel, IL, USA
Brett Gardner, IA Interior Architects, IL, USA
Gary Graham, Cushman & Wakefield, IL, USA
Roy Green, HNI Corp., IL, USA
Susan Heiniking, Pepper Construction, IL, USA
Kurt Karnatz, Environmental Systems Design (ESD), IL, USA
Laurel Kruke, Illinois Green Alliance, IL, USA
Saagar Patel, ESD, IL, USA
Tony Smaniotto, MCR, Pepper Construction, IL, USA
Mark Stenftenagel, Whitney Architecture, IL, USA
Jason Streepy, Allstate Insurance, IL, USA
Emmy Swift, Allstate Insurance, IL, USA
Tim Zelazny, Environmental Sys. Design (ESD), IL, USA
Emma Cox, McDonalds, IL, USA

To review CoreNet Global COVID-19 Hackathon team reports in full, visit www.corenetglobal.org/hackathonresults
For more information, contact:

Hackathon Project Manager: Sonali Tare, Senior Director, Content Experience, CoreNet Global
Email: stare@corenetglobal.org
Phone: +1 404 589 3206

Hackathon Editor: Tim Venable, Senior VP, Research and Content Development, CoreNet Global
Email: tvenable@corenetglobal.org
Phone: +1 404-589-3221

Media Relations: David Harrison
Email: david@harrisoncommunications.net
Phone: +1 410-804-1728

Georgia Pacific Center
133 Peachtree Street
Suite 3000
Atlanta, GA 30303 U.S.
+1 (404) 589-3200
www.corenetglobal.org

corenets.org
@CoreNetGlobal
facebook.com/CoreNetGlobal
youtube.com/CoreNetGlobalInc
linkedin.com/groups/2420247

To review CoreNet Global COVID-19 Hackathon team reports in full, visit www.corenetglobal.org/hackathonresults