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Examining the Impact of COVID-19 on U.S. HVAC Sector

CONTRIBUTED BY BSRIA WORLDWIDE MARKET INTELLIGENCE

BRACKNELL, BERKSHIRE, U.K.—After its longest expansion period on record, the U.S. economy achieved its peak in February 2020 and subsequently has fallen into a downturn, as announced by the National Bureau of Economic Research’s Business Cycle Dating Committee. The COVID-19 outbreak is the main contributor to this development with effects seen across all economic indicators.

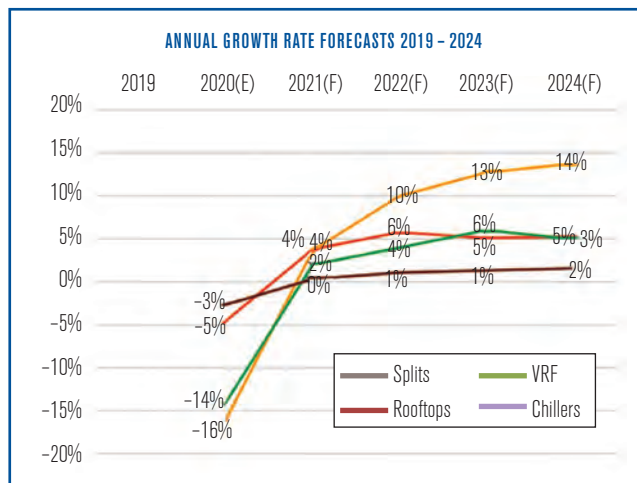
To contain the pandemic, regulations were put in place in the last six months forcing businesses toward investments to increase health safety and prevent spreading the virus. While necessary to fight the pandemic and speed up recovery, some businesses have suffered temporary loss of productivity.

Vertical markets served by the HVAC&R sector have been hit at various degrees by the pandemic. Hotels, hospitality, restaurants and venues have been struggling due to concerns over contracting the virus, even after they could reopen. It is also expected that consumers will shift their spending toward alternatives such as durable goods, which can have a positive effect on housing in the future.

According to a survey carried out by the American Institute of Architects, construction activity is expected to fall in 2020, and this will likely continue in 2021. Construction activities related to hotels will fall by more than 20% in 2020, by almost 8% in retail, by more than 11% in offices, by nearly 7% in education and by 13% in recreational/amusement establishments. In the current situation, it is no surprise that construction activities in the public safety and health-care facilities are predicted to record growth (almost 16% and more than 2%, respectively, in 2020).

Sales of air conditioners in the U.S. residential market have been somewhat volatile in the first six months of 2020.

The global health crisis triggered by the pandemic has caused bottlenecks in the supply chain. Manufacturing plants closing or reducing operation and staff being furloughed caused logistical challenges and disrupted



distributor/contractor activities. This considerably reduced inventories and the ability to serve customers on time. Nevertheless, a warm summer with above average-temperatures sustained replacement demand and increased spending on home improvement, facilitated by the fact that people have been forced to spend more time indoors, and due to more time available for do-it-yourself projects.

However, while replacement activity has been very intense, the virtual standstill of new residential construction eroded any growth to the overall market demand. As a result of these combined factors, the residential market is expected to fall moderately by the end of 2020. Market growth should resume in 2021, supported by low stock.

The light commercial market has been disrupted more severely, which affected demand. Business closures, the crisis of the retail and hospitality industries, the fall in demand for renovations of educational facilities and postponement or cancellation of projects have curtailed market demand. The first six months of the year recorded only a moderate fall in sales of variable refrigerant flow (VRF) as the market was still invoicing projects commencing in the pre-COVID-19 period. However, in the second half of 2020, a larger fall in sales is expected.

As of the end August, the impact of the economic crisis caused by the spread of COVID-19 has not yet fully translated in a sizeable decline in chiller sales. The heavy commercial market usually reacts with a time lag to economic downturns as projects have a longer timeline, especially in the case of high complexity systems. However, the general expectation is for a progressive decline of this market toward the end of the year and for the downturn to possibly continue in 2021.

In the short term, the uncertainty generated by the volatile evolution of the pandemic and the approaching presidential election will very likely depress sales of all chiller types to most vertical markets except for health-care, information technology (IT) and data centers.

In the longer term, providing that interest rates remain low and the pandemic is soon contained, the market could bounce back, although the bulk of the investments may shift significantly across vertical markets. The contingent measures of social distancing introduced with the spread of COVID-19 appear to have triggered structural changes in office space utilization, as well as in the retail, leisure and hospitality sectors. Therefore, it is likely that climate control requirements in these vertical markets will change significantly with a growing emphasis on indoor air quality (IAQ) and improved ventilation solutions.

Nevertheless, the focus of users on efficiency has not changed, and new refrigerants continue to be central in the product development of the suppliers, albeit these yet to reach the mainstream market.

Another hike of investment as the direct consequence of the economic shock triggered by the COVID-19 pandemic is related to the need of diversifying suppliers; also, purchases from a variety of suppliers are often done with less favorable prices. Increasing inventory levels of critical raw materials/components/products have also become an issue.

The pandemic is also forcing building owners and businesses to change the way they operate, to offer a safe working environment, in which employees trust and feel comfortable. This means reducing the size of “work areas,” reducing the number of working desks in offices and possibly even reducing the size of occupied areas. To enable this and also maintain its safe operation, increasing investment levels can make commercial buildings “smarter” and more efficient to use, with solutions such as contactless access control, occupancy analytics, employee tracking services, proximity sensing and analytics (using indoor location mapping solutions) and IAQ sensing and monitoring, alongside air purification and disinfection solutions.

The COVID-19 pandemic has been challenging the role of the traditional office, and it is reinforcing the need for the office to act as a communal space that encourages innovation and collaboration, while nurturing team spirit and company culture. A future solution seems to be an increased focus on technology-enabled workplaces that can be used for collaborative meetings and hosting clients, while coexisting with the increasing trend of staff working remotely most of the time.

ASHRAE's COVID-19 Mitigation Resources

Making Polling Places Safer

ATLANTA—Ahead of the U.S. election season, the ASHRAE Epidemic Task Force (ETF) has released HVAC and water supply system guidance to reduce the risk of spreading the SARS-CoV-2 virus at polling locations. One recommendation is running HVAC systems while the building is occupied. If the HVAC system cycles on/off with the thermostat, the ETF suggests running the fan constantly during occupied hours.

This summary is part of ASHRAE's Building Readiness Guidance that provides practical information to help mitigate virus transmission. Download the polling place guidance at: <https://tinyurl.com/ASHRAEpollingplaces>

Updated Building Readiness Guidance Addresses Strategies, Best Practices

ATLANTA—The ASHRAE Epidemic Task Force's Building Readiness guidance provides practical information and checklists for how buildings should operate during and after the COVID-19 pandemic, how to develop a Building Readiness Plan and how to make overall improvements to a system's ability to mitigate virus transmission.

Download the guidance:

<https://tinyurl.com/buildingreadinessguidance>

Industry Roundup

Berkeley Lab: Home Air Quality Monitors Useful for Wildfire Smoke

BERKELEY, CALIF.—Lawrence Berkeley National Laboratory has tested four low-cost home air quality monitors for accuracy in detecting indoor pollution levels. Wildfire smoke in recent years and months has created hazardous outdoor air quality in parts of the U.S. The researchers concluded the monitors could help consumers, engineers and building operators have better tools to understand their building's performance during a wildfire.

Source: Lawrence Berkeley National Laboratory

Microsoft: Underwater Data Centers Can Be Energy Efficient

ORKNEY ISLANDS, SCOTLAND—Microsoft submerged a data center to the seafloor off the Scottish coast in 2018 to test the viability and performance of underwater data centers. After retrieving the data center, results show underwater data centers can be economically and environmentally

practical. The cool sea temperatures allow for energy-efficient data center design, such as using heat-exchange plumbing.

Source: Microsoft

Reducing HVAC Energy Use, Costs While Maintaining Occupant Comfort

ATHENS, GA.—Turning up the thermostat a few degrees can significantly reduce energy use without sacrificing occupants' thermal comfort, according to a University of Georgia study. Thomas Lawrence, Ph.D., P.E., Fellow ASHRAE, conducted a study on the UGA campus that focused on the impact of adjusting cooling system setpoints, occupant thermal comfort and total HVAC energy consumption. The study found increasing building temperature setpoints reduced energy consumption by 19% to 40% without forgoing occupant comfort.

Source: University of Georgia ■

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