



A HEALTHIER FUTURE **STARTS** **INDOORS: MARINE**

The COVID-19 pandemic has brought the entire cruise industry to a standstill. It's estimated that since mid-March, when the suspension of cruise operations began, through the end of September, the worldwide impact will be a loss of \$50 billion in economic activity, 334,000 jobs and \$15 billion in wages.¹ The staggering numbers underscore the importance of safely restarting cruise ship operations.

Outbreaks and research have shown that marine spaces present unique challenges for infectious disease control. Through engineering and administrative controls and healthy building strategies, cruise ship owners and operators can navigate these challenges to protect passenger and staff health, enhance the experience and gain consumer confidence. The future of the industry depends on it – and that future starts indoors.

¹Cruise Lines International Association. (2020). FAQs: The Cruise Community and COVID-19. Retrieved from https://cruising.org/-/media/Facts-and-Resources/Cruise-Industry-COVID-19-FAQs_August-13-2020

MARINE PRIORITIES



HEALTHY CRUISE SHIPS IN ACTION

Delivering a healthy ship requires ship owners and builders to focus on addressing foundational aspects of the indoor environment to positively impact the crew and passengers inside. Dr. Joseph Allen and a multidisciplinary team of experts from the Healthy Buildings Program at the Harvard T.H. Chan School of Public Health have identified these key areas as “The 9 Foundations of a Healthy Building.” Based on the 9 Foundations, we’ve outlined specific strategies cruise ship owners and operators can take to create healthy onboard environments.



VENTILATION

Maximize outdoor air ventilation
Monitor and control target ventilation



AIR QUALITY

Implement multipoint IAQ monitoring
Incorporate advanced IAQ controls



THERMAL HEALTH

Design to appropriate comfort standard
Advanced localized controls



FILTRATION

Filter air at MERV 13 or higher
Implement advanced purification solutions



MOISTURE

Control to 40%-60% relative humidity



SAFETY AND SECURITY

Implement touchless access
Execute advanced access solutions



NOISE

Design for minimum equipment background noise



CARRIER HEALTHY BUILDINGS PROGRAM

As the inventors of modern air conditioning and a world leader in HVAC, refrigeration, and fire & security solutions, Carrier has a legacy of creating safe and comfortable indoor environments. Now we’re building on that legacy through the launch of our Healthy Buildings Program. Our experts have in-depth knowledge and experience in marine applications and a holistic suite of healthy building technologies and services to address the immediate pandemic concerns and long into the future.

HEALTHY ASSESSMENTS FOR MARINE

At Carrier, we understand that many of our marine customers are facing uncertainty with how to move forward in developing a healthy floating hotel strategy. Our experts are here to help – starting with assessments across various aspects of your ship or fleet.



SAFE START SERVICES

Ensure ship is ready for passengers
Rigorous recommissioning of HVAC equipment
Implement best practices (possibly remotely)



EMERGENCY ASSETS

HVAC equipment on demand to reopen quickly and safely
Detailed site evaluations
Ensure system is able to meet your new ventilation and IAQ requirements



IAQ ASSESSMENT

Test air quality
Develop and implement upgrades for optimal filtration, ventilation, airflow, controls, etc.
Develop corporate-wide IAQ engineering standards



HEALTHY SHIP ASSESSMENT

Benchmark against best practices for healthy ships
Provide options for improvement
Make recommendations based on customer needs and priorities



SECURITY ASSESSMENT

Provide security solutions and upgrades
Contactless access management, body temp screening and video analytics
Remote monitoring and diagnostics



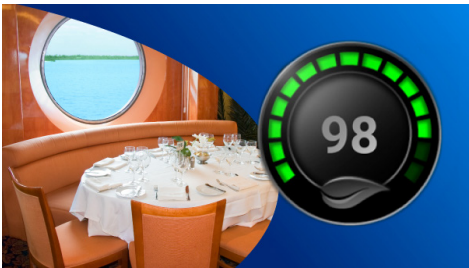
AIRSIDE TECHNOLOGIES

HEALTHY BUILDINGS SOLUTIONS FOR MARINE

Carrier offers a full suite of products and services designed to help create safe and healthy environments onboard today's ships. The following are just a few highlights of our offering.



OPTICLEAN™ AIR SCRUBBER AND
NEGATIVE AIR MACHINE



WEBCTRL®

TOUCHLESS ACCESS



READERS AND PHYSICAL CREDENTIALS

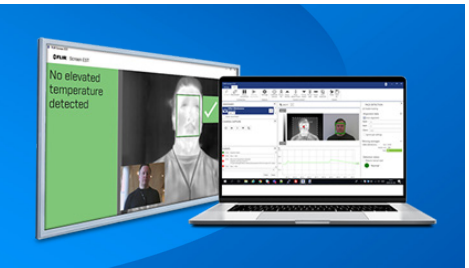


APP AND MOBILE CREDENTIALS



MYWAY™ BUILDING SERVICES
MOBILE PLATFORM

EXPANDING TECHNOLOGY



FLIR SCREEN-EST™

INTEGRATED SAFETY AND EMERGENCY MANAGEMENT



AUTROMASTER



ALL-IN-ONE FIRE DETECTION

HEALTHY BUILDINGS SERVICES FOR MARINE

Healthy cruise ships are about more than design and solutions. Ongoing management and operation are essential to optimizing indoor environments for efficiency, safety and occupant health and performance. Here are a few examples of Carrier remote services available to help.



REMOTE AIRSIDE MANAGEMENT

Manage IAQ and ventilation in line with best practices

Make changes and fix issues remotely

Optimize maintenance and operational costs

24x7 command center



REMOTE ENERGY MANAGEMENT

Provide advanced cloud-based analytics

Optimize energy efficiency, equipment uptime, occupant comfort and operational productivity

Actionable insights by CORTIX™ building IoT platform

Optimize autonomously or through a mobile application



REMOTE HVAC SERVICES

Maximize performance and efficiency

Increase uptime

Improve budgeting and scheduling

Fault detection and diagnostics



GET STARTED WITH AN EXPERT

From safely setting sail to ensuring passenger confidence, a healthier future starts indoors. Let's work together to unlock the enormous potential of healthy cruise ships. Visit us at carrier.com/healthybuildings to learn more about our Healthy Buildings Program and connect with one of our experts.



HEALTHYBUILDINGS

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