



Steira Air

"Your Healthy Environment Specialist"



If you can't figure out your purpose, figure out your passion, your passion will drive you right to your purpose.

Charles W. Raglin

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MASTERING INDOOR ENVIRONMENTS

Mastering Indoor Environments: Expert Insights from HVAC Pioneer Charles Raglin

Foreword: Why This Book Matters Now

In an increasingly health-conscious world, where airborne pathogens, allergens, and environmental pollutants pose ongoing threats, the importance of mastering indoor environments cannot be overstated. The COVID-19 pandemic and subsequent global health challenges have underscored the critical role of HVAC systems in safeguarding public health, particularly in densely populated spaces like hospitals, schools, and offices. Charles Raglin, with his unparalleled expertise in HVAC maintenance, innovative technologies, and indoor air quality (IAQ), stands at the forefront of this vital field. As President and CEO of Steira Air, LLC and Steira AQ, Raglin has dedicated over three decades to developing solutions that not only enhance efficiency but also prioritize infection control and overall well-being.

This expanded edition of the eBook delves even deeper into Raglin's methodologies, incorporating fresh insights from his recent work, including his 2025 discussions on infection prevention and terminal HVAC coil cleaning in air quality. We explore his close collaborations with Infection Control Directors and Practitioners, Directors of Engineering, and HVAC Managers, highlighting how these partnerships have driven transformative outcomes across hospitals, VA government facilities, schools, and colleges. Through detailed case studies, expanded strategies, and forward-looking trends, this guide aims to equip readers with the knowledge to create resilient, healthy spaces. Raglin's work is more relevant than ever in 2025, as evolving standards such as the updated AS 1668.2:2024 emphasize verifiable clean-air environments. If you're a facility manager, healthcare professional, educator, or simply someone invested in a healthier indoors, these insights will inspire action. And if the strategies outlined here spark ideas for your own space, reaching out to Charles Raglin could lead to a personalized consultation—potentially the start of a collaboration that elevates your environment to new heights of safety and efficiency.

Introduction: The Journey of an Industry Trailblazer

Charles Raglin's professional odyssey is a compelling narrative of dedication, innovation, and impact in the HVAC sector. Born from a foundation of military service, Raglin's career began in 1987 as an HVAC technician in the United States Army. His pivotal role during the Gulf War, where he managed HVAC systems for a 500-bed field hospital in Saudi Arabia, underscored the life-or-death importance

of maintaining optimal air quality in extreme conditions. This experience not only honed his technical skills but also instilled a profound understanding of how HVAC systems intersect with health and infection control—lessons that continue to shape his work today.

After his honorable service, Raglin brought his expertise to the civilian world, accumulating over 30 years in the industry, with more than 20 years specializing in testing, adjusting, and balancing HVAC systems. In 2017, he founded Steira Air, LLC, a veteran-owned business headquartered in Snellville, Georgia, with additional offices in Kentucky and Texas. As "Your Healthy Environment Specialist," Steira Air focuses on creating, verifying, monitoring, and certifying clean-air environments, emphasizing chemical-free processes to minimize infection risks across diverse settings.

Raglin's commitment to infection control is evident in his close collaborations with key stakeholders. He works hand in hand with Infection Control Directors and Practitioners to develop protocols that reduce airborne pathogen transmission, while partnering with Directors of Engineering and HVAC Managers to integrate maintenance and technological solutions that ensure system reliability and compliance. Notable works include optimizing HVAC systems in hospitals to enhance sterile zones, improving air quality in government VA facilities to protect vulnerable veterans, and implementing purification strategies in schools and colleges to foster safer learning environments.

In response to the heightened awareness of airborne threats post-COVID, Raglin expanded his portfolio in 2024 by launching Steira Air Quality, LLC (Steira AQ). This venture introduces advanced tools, such as the Coil Monitoring and Management (CAM) System, which combines real-time monitoring with active purification to combat contaminants effectively. Steira AQ's offerings are designed for seamless integration into existing HVAC infrastructures, making them accessible for residential, commercial, and institutional applications.

Beyond his companies, Raglin actively shares his knowledge through digital platforms. His YouTube channel features videos on fighting infections with better air and demonstrations of the CAM System in hospital settings. On LinkedIn and Facebook, he posts insightful content, such as his 2025 reflections on welcoming a new year of clean air and the crucial role of coil cleaning in infection control. Endorsements on platforms like ProvenExpert, dating back to late 2023, further validate his expertise, with clients praising his innovative approaches.

This comprehensive eBook builds on Raglin's legacy, offering an in-depth exploration of HVAC maintenance, cutting-edge technologies, and IAQ through the lens of infection control. We'll examine expanded strategies, real-world applications, and emerging trends, complete with practical tips and calls to action. By the end, you'll not only appreciate Raglin's contributions but also be motivated to engage with him directly—perhaps scheduling a consultation via www.steiraair.com or www.steiraaq.com to apply these principles to your own challenges.

Chapter 1: Mastering HVAC Maintenance – The Foundation of Healthy Systems and Infection Control

At the heart of any effective indoor environment strategy lies robust HVAC maintenance. Charles Raglin views maintenance not as a mere checklist but as a proactive defense against inefficiencies, breakdowns, and health risks, including the spread of infections. In critical facilities, where systems often operate 24/7, neglect can lead to energy waste, reduced airflow, and the accumulation of pathogens in coils and ducts. Raglin's military-honed precision—managing HVAC systems under desert conditions—translates into meticulous protocols that prioritize safety and performance. Infection control is a core thread in Raglin's maintenance philosophy. He collaborates closely with Infection Control Directors and Practitioners to align services with health protocols, ensuring that maintenance activities directly support pathogen mitigation. Meanwhile, partnerships with Directors of Engineering and HVAC Managers facilitate the integration of these practices into broader facility operations, from design reviews to ongoing optimizations.

Core Maintenance Strategies for Infection Prevention and Efficiency

- **Steam Coil Cleaning:** Raglin's pioneering chemical-free method employs medium-pressure, high-temperature steam to penetrate and sterilize deep within commercial coils, removing dirt, debris, and microbial buildup. This not only restores system efficiency—potentially reducing energy costs by up to 30%—but also eliminates potential breeding grounds for infections. In hospitals and VA facilities, this technique has been instrumental in maintaining sterile airflows, with Infection Control teams appreciating the verifiable cleanliness it provides. For schools and colleges, it prevents seasonal allergen spikes that could exacerbate respiratory issues.
- **Enzyme+36 Cleaning:** This advanced, enzyme-based solution targets organic contaminants, breaking down biofilms, mold, and bacteria without harsh chemicals. It's particularly effective in preventing recurrent issues in high-humidity environments, extending equipment lifespan, and ensuring consistent, clean airflow. Raglin's collaborations often involve customizing application schedules with HVAC Managers to minimize disruptions in educational settings, where student health is paramount.
- **Air-Cooled Chiller Servicing:** Recommended at least biannually, this service includes comprehensive inspections, cleaning, and performance adjustments to prevent downtime. On government VA projects, Raglin has coordinated with engineering directors to service

chillers in veteran care wards, ensuring uninterrupted cooling that supports infection control by maintaining optimal temperatures and humidity.

- **Test and Balance Expertise:** As certified specialists, Steira Air verifies system airflow, pressure, and overall performance, providing detailed reports and design recommendations. This service is crucial for certification processes, where Infection Control Practitioners rely on data to confirm compliance with standards like those from ASHRAE. In colleges, these tests have helped identify and address imbalances that could lead to uneven air distribution and increased infection risk in dorms or lecture halls.

Collaborative Approaches in Maintenance: Building Multidisciplinary Teams

Raglin's success stems from fostering strong partnerships. For instance, in hospital settings, he works with Infection Control Directors to conduct risk assessments before maintenance, ensuring activities align with isolation protocols. Directors of Engineering provide blueprints for targeted interventions, while HVAC Managers oversee on-site executions. This teamwork extends to schools, where collaborations have led to maintenance plans that incorporate back-to-school audits to preempt flu season vulnerabilities.

Real-World Lessons, Challenges, and Tips for Implementation

Drawing from his Gulf War experiences, Raglin shares: "In high-stakes environments, maintenance isn't reactive—it's anticipatory." Common challenges include budget constraints in public schools or regulatory hurdles in VA facilities, which he addresses through cost-benefit analyses showing long-term savings. Practical tips include:

1. Conduct seasonal audits in collaboration with infection control experts.
2. Train in-house teams on basic monitoring to complement professional services.
3. Use data logs to track improvements, as Raglin does in his certifications.

The outcomes are compelling: equipment life extended by 20-50%, reduced energy bills, and fewer infection incidents. If your facility's maintenance feels outdated or infection risks loom large, envision the difference a tailored plan could make—Charles Raglin is just a call away to discuss how Steira Air can fortify your systems.

Chapter 2: Revolutionizing HVAC with Cutting-Edge Technologies for Infection Control

Innovation drives Charles Raglin's vision for HVAC, transforming traditional systems into intelligent, adaptive guardians against environmental threats. In 2025, as air quality standards evolve, Raglin's technologies emphasize sustainability, real-time responsiveness, and infection prevention. His tools are crafted for seamless collaboration: Infection Control Practitioners use data for evidence-based decisions. At the same time, Directors of Engineering and HVAC Managers integrate them into existing infrastructure to maximize impact.

Spotlight on Key Innovations for Pathogen Neutralization and System Optimization

- **Terminal HVAC & Coil Steam Cleaning and Sterilization:** Building on Raglin's 2017 innovations, this process sterilizes all compartments of the HVAC System and coils using medium pressure, high-temperature steam, in medical facilities, schools, and colleges, this tech has been applied to HVAC systems, greatly reducing pathogen spread and improving HVAC efficiency.
- **Continuously Active Monitoring (CAM) system:** Steira AQ's flagship product, the CAM system, offers real-time data collection on indoor air quality, including analytics, alerts, and integrations. It monitors nine parameters, including PM2.5, TVOCs, CO2, ozone, and more, and calculates indexes such as the Air Quality Index, Discomfort Index, and Virus Index. By releasing millions of ions, it actively neutralizes contaminants, making it a powerhouse for air cleaning and infection control. In hospitals, Raglin's deployments provide instant alerts to Infection Control Directors, enabling swift responses to dips in air quality.
- **Bipolar Ionization Systems:** Technologies like Steira Air's high output Bipolar Ionizer generate billions of ions that sanitize airflow by targeting viruses, bacteria, odors, and allergens. Ideal for offices, homes, schools, VA and other healthcare facilities, these systems are installed in collaboration with HVAC Managers to ensure even distribution via fan operations.
- **Coil Monitoring and Management System (CAMS):** The first of its kind, Never have to replace a coil due to high pressure drops again! Our Coil Monitoring & Management System is a comprehensive solution that combines state-of-the-art technology, data analytics, and proactive monitoring and management strategies to optimize the functionality of HVAC coils. Our Coil Monitoring and Management System was designed specifically to monitor the HVAC coil efficiency level 24/7, however, it can be customized for your special needs.

Integration, Scalability, Partnerships, and Advanced Features

The CAM System covers up to 800 sq. ft. per unit (with options for multiples), requires the HVAC fan to run for ion dispersion, and features low-maintenance automatic updates. Raglin's partnerships shine here: In colleges, engineering directors collaborate on scalable installations for campus-wide protection, while hospital infection control teams use the Virus Index for targeted interventions. Raglin's 2024 launch of Steira AQ, with 2025 enhancements like expanded monitoring capabilities, reflects his forward momentum: "Technology must evolve with threats, supporting those on the front lines of health." These innovations reduce energy consumption, minimize waste, and provide verifiable data for compliance.

If integrating such tech into your operations intrigues you, Charles can offer a virtual demo or site assessment, tailoring solutions to your specific infection control needs.

Chapter 3: Elevating Indoor Air Quality – A Core Pillar of Infection Control

Indoor air quality (IAQ) is the invisible foundation of health, directly influencing infection rates, productivity, and comfort. Poor IAQ can amplify respiratory issues, allergen exposure, and pathogen transmission—challenges Charles Raglin tackles head-on through data-driven, collaborative strategies. In 2025, with heightened focus on verifiable standards, Raglin's approaches integrate monitoring, purification, and certification to create measurably healthier spaces.

Raglin's IAQ initiatives thrive on partnerships: Infection Control Directors leverage his tools for risk mitigation, Directors of Engineering ensure structural compatibility, and HVAC Managers maintain ongoing performance.

Comprehensive IAQ Approaches for Infection Mitigation and Health Enhancement

- **Advanced Monitoring and Neutralization:** The Steira AQ CAM System tracks over nine parameters, including ozone, nitrogen dioxide, carbon monoxide, CO2, TVOCs, PM2.5, air pressure, humidity, and temperature, while deploying ions to neutralize threats. The Virus Index is particularly valuable for infection control, as it alerts teams to elevated risks. In VA hospitals, this has supported protocols for protecting immunocompromised patients.

- **HVAC-Integrated Purification:** Combining enzyme cleaning, steam sterilization, and bipolar ionization, these methods address contaminants at their source. For schools, Raglin's teams collaborate to implement solutions that reduce absenteeism from airborne illnesses, ensuring clean air in classrooms and gyms.
- **Certification and Verification Services:** Steira Air's certifications provide documented proof of IAQ compliance, essential for regulatory audits in colleges and healthcare settings. Ion verification meters confirm effective purification levels, giving stakeholders confidence.

Addressing Common IAQ Challenges and Benefits

Challenges such as high college occupancy or stringent hospital hygiene standards are addressed through customized plans. Benefits include reduced sick days, improved cognitive function, and lower infection rates—backed by testimonials noting fresher air and fewer allergies. Raglin emphasizes: "Measurement is the first step to mastery—IAQ data empowers proactive infection control."

If persistent IAQ issues plague your facility, a consultation with Charles could uncover hidden opportunities for improvement, drawing on his extensive collaborative experience.

Chapter 4: Real-World Impact – Case Studies, Testimonials, and Notable Works

Theory becomes transformative when applied in the real world. Charles Raglin's expertise has yielded tangible results across sectors, particularly through infection control-focused projects. While specific case studies are often confidential, generalized examples and testimonials illustrate his impact, drawn from collaborations in hospitals, VA facilities, schools, and colleges.

Notable Works and Collaborations Across Sectors

- **Hospitals:** Raglin has partnered with Infection Control Directors to deploy CAM Systems, as demonstrated in 2023 videos that showed real-time monitoring and ion purification reduced airborne risks in patient areas. A hypothetical California hospital scenario mirrors testimonials: Post-installation, infection rates dropped, and staff noted fresher air.
- **Government VA Facilities:** Working with engineering directors, Steira Air has optimized HVAC in veteran wards using steam cleaning and ionization, preventing infections in sensitive environments. Collaborations ensure compliance with federal standards, enhancing veteran health outcomes.

- **Schools and Colleges:** In K-12 and higher education, partnerships with HVAC Managers have implemented bipolar ionization and maintenance plans, curbing outbreaks. For instance, in Atlanta schools, users report reduced headaches and higher productivity, aligning with Raglin's focus on student well-being.

Success Stories and Testimonials

- **Terrence Coleman, California (Residential/Hospital-Inspired):** "The CAM System improved my family's air quality dramatically, reducing allergies—much like it would in a hospital setting."
- **Melvin Powell, Texas (VA-Relevant):** "Fresher air and peace of mind from real-time monitoring—ideal for protecting vulnerable groups."
- **Erica Ryan, Arizona; Emily Carter, Denver; Jason Mitchell, Atlanta:** Echo reductions in odors, dust, allergies, and headaches, highlighting applications in educational and commercial spaces.

These narratives underscore collaborative successes. If your organization seeks similar transformations, sharing your challenges with Charles could lead to your own success story.

Chapter 5: Looking Ahead – Future Trends in HVAC, IAQ, and Infection Control

As we advance into 2025 and beyond, Charles Raglin envisions a future where HVAC systems are smarter, more sustainable, and deeply integrated with infection control. Emerging trends include AI-driven predictive maintenance, which anticipates issues before they arise, and widespread adoption of ion-based purification for zero-chemical environments.

Raglin anticipates tighter regulations, such as expansions of ASHRAE standards, that emphasize verifiable data. Global expansions of tech like the CAM System and the CMMS will address diverse climates, while collaborations evolve to include data-sharing platforms for real-time team coordination.

"The pandemic accelerated innovation," Raglin notes in his 2025 posts. "Now, we're building resilient systems for tomorrow's threats." Steira Air is poised to lead, with potential new features like enhanced AI integrations. If future-proofing your space excites you, discussing trends with Charles could provide invaluable foresight.

Chapter 6: Taking Action – Partnering with Steira Air for Infection Control and Facility Management

Translating knowledge into action is key. Steira Air offers comprehensive services: from initial audits and custom maintenance plans to CAM System installations and certifications. Collaborations begin with consultations, where Raglin's team assesses your needs alongside Infection Control Directors, engineering leads, and HVAC Managers. Contact options include info@steiraair.com, www.steiraair.com, or www.steiraair.com. Professional installation ensures optimal setup, with representatives scheduling visits post-purchase. Start small—a phone call or email—and discover how Raglin's expertise can address your infection control challenges. Don't delay; your healthier environment is within reach.

Conclusion: Empower Your Space with Expert Guidance

Charles Raglin's evolution from Army technician to HVAC innovator exemplifies a commitment to healthier worlds. His expanded strategies in maintenance, technology, and IAQ, bolstered by infection control and facility management collaborations, have impacted hospitals, VA facilities, schools, and beyond. As airborne threats persist, his verifiable, sustainable solutions offer a blueprint for resilience.

This eBook invites you to act: Implement these insights, and if questions arise, connect with Charles. Your journey to a superior indoor environment starts with that conversation—reach out today and join the ranks of those who've benefited from his pioneering work.