

COLLEGE & UNIVERSITY READINESS

ASSESSING BUILDING SYSTEMS FOR CAMPUS REOPENING & ONGOING BUILDING HEALTH

As higher education leaders strategize if, when, and how they will reopen, their buildings have become an important part of the conversation. *What do we need to do to make them safer and healthier? Which buildings and systems need attention? How can we reduce risks for students, faculty, and staff?*

By Karpinski Engineering | www.karpinskieng.com

Government and industry organizations have published guidelines and best practices to help higher education institutions prepare their buildings for reopening. When it comes to building systems and operations, some mitigation strategies can be immediately implemented. Others require additional planning.

Here are 5 steps to help you organize and streamline the process.

1. PLAN



National, state, and local guidelines provide the framework for your plan, which is then customized to your campus's specific needs.

At minimum, it should include a review and documentation of all HVAC and domestic water systems (see "Advice from the Experts"). For residence halls, pay particular attention to stagnant water, rooms with air issues, and building entries and gathering spaces.

As best practices continue to evolve, higher ed leaders may find themselves flooded with new information and requirements. If you or your team need support, a qualified third party can help you create and implement your plan (see "Who's on Your Team?").

2. INVESTIGATE

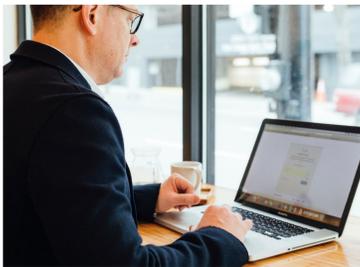


Assess your building's HVAC, building controls, and domestic water systems.

Ideally, the assessment will look beyond the low-hanging fruit of filters and ventilation to the big picture of the facility. Questions to ask include:

- Is our equipment operating properly? Can it support modifications to its typical operations?
- What opportunities are there for improvement and optimization?
- What's our overall equipment condition?
- What ongoing maintenance do we need to prioritize?

3. REPORT & RECOMMEND



Develop a prioritized improvement list.

Your investigation should help you answer important questions: What's in good shape? What needs immediate attention? What needs a long-term plan?

If you're working with a third-party consultant, they should provide cost estimates for recommended improvements. They should also help you weigh your options and determine what makes the most sense for your building.

4. IMPLEMENT



Based on the investigation, report, and recommendations, you decide which improvements to implement.

Depending on the improvement, your staff, a third-party consultant, or a contractor will implement it. If you're working with a consultant, they should verify that the recommendations fit within your building systems as a whole, customize any designs for your building, and select products that meet your performance requirements.

5. CONFIRM & DOCUMENT



Show stakeholders results.

Once upgrades are complete, you'll want to confirm the work. If a qualified third party has provided services, you'll want to request documentation that describes the work performed and outcomes. This information can be used in reports to the board, faculty, staff, students, and parents.



Advice from the Experts

The medical and scientific community's understanding of SARS-CoV-2, the virus that causes COVID-19, continues to evolve. At present, here are some points of agreement about interventions for building operations:

ASHRAE¹ and the EPA² agree that **HVAC systems have a role to play in protecting people**. The CDC³ points to the importance of ventilation and outdoor air. ASHRAE offers detailed, practical guidance regarding HVAC system operations as schools reopen.⁴

The CDC⁵ and ASHRAE⁶ highlight the importance ensuring **safe building water systems**, such as by flushing plumbing systems after a prolonged shut-down to minimize the risk of Legionella.



Options for Indoor Air Quality Improvements

To improve indoor air quality, here are six options to evaluate:

- Ventilation
- Filtration
- Humidification
- System Optimization
- Ultraviolet Germicidal Irradiation
- Bipolar Ionization

Learn more: [Boosting Indoor Air Quality Smart Solutions for Healthier Building Environments \[Infographic\]](#)



Who's on Your Team?

If you need extra assistance, here are some of the people who can help.

- An **engineering professional** or **qualified commissioning process provider (QCxP)** can lead the process from a technical and management standpoint, validating potential solutions and guiding the team. They can also provide a third-party review of any work.
- A **mechanical contractor** to inspect and repair HVAC equipment
- A **plumbing contractor** to inspect and repair domestic plumbing equipment
- A **testing and balancing (TAB) professional** to verify airflow throughout your facility
- A **controls contractor** to modify the controls sequence if needed

¹ ASHRAE, [Reopening of Schools and Universities](#)
² EPA, [Indoor Air and Coronavirus \(COVID-19\)](#); EPA, [Air Cleaners, HVAC Filters, and Coronavirus \(COVID-19\)](#)
³ CDC, [Considerations for Institutions of Higher Education](#); CDC, [COVID-19 Guidance for Shared or Congregate Housing](#)
⁴ ASHRAE, [Reopening of Schools & Universities](#); see also ASHRAE, [Building Readiness Guide](#)
⁵ CDC, [Guidance for Reopening Buildings After Prolonged Shutdown or Reduced Operation](#); CDC, [Considerations for Institutions of Higher Education](#)
⁶ ASHRAE, [Reopening of Schools and Universities](#)

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