Building Automation System Self-Assessment Guide

A Step-by-Step Approach to Evaluating Your Facility's BAS

Published by Fuller Consulting and Support Services

Introduction

Why Assess Your Building Automation System?

Your Building Automation System (BAS) is the brain of your facility, controlling heating, cooling, ventilation, and other critical building functions. An outdated or underperforming BAS can lead to:

- **Higher energy costs** – Inefficient operations waste thousands of dollars annually
- **Occupant complaints** – Poor temperature control affects productivity and satisfaction
- **Maintenance headaches** – Aging systems require more frequent repairs
- **Security vulnerabilities** – Outdated systems may lack modern cybersecurity protections
- **Missed opportunities** – Modern systems offer advanced features you may not have

This guide will help you systematically evaluate your current BAS, identify areas for improvement, and build a compelling case for modernization to present to your management or ownership team.

Who Should Use This Guide?

This self-assessment is designed for:

- Facilities managers
- Building engineers
- Property managers
- Operations directors
- Anyone responsible for building systems

No specialized BAS expertise required – we've designed this to be accessible while still comprehensive.

- **How to Use This Guide**
  1. **Read through entirely first** to understand the scope
  2. **Gather recommended information** before you begin
  3. **Work through each section** at your own pace
  4. **Complete the scoring sheets** honestly
  5. **Review your results** to identify priorities
  6. **Use the presentation template** to communicate findings

Time Required: Plan for 4-8 hours spread across several days to complete a thorough assessment.

Part 1: Getting Started
What You'll Need

Before beginning your assessment, gather the following information:

Essential Documents:

- [ ] BAS system manuals or vendor documentation
- [ ] Building floor plans or layout diagrams
- [ ] Equipment lists (HVAC units, controllers, sensors)
- [ ] Recent utility bills (12 months if available)
- [ ] Service and maintenance records

Nice to Have:

- [ ] Control system screenshots or graphics
- [ ] Previous assessment or audit reports
- [ ] Alarm or event logs
- [ ] Staff feedback on system performance

Don't worry if you can't find everything – work with what you have and note gaps in your documentation.

Understanding Your Current System

Start by answering these basic questions about your BAS:

1. **When was your BAS installed?**
    - [ ] Within last 5 years
    - [ ] 5-10 years ago
    - [ ] 10-15 years ago
    - [ ] 15-20 years ago
    - [ ] More than 20 years ago
    - [ ] Unknown
2. **Who is the system manufacturer?**
    - System brand: _____
    - Model/series: _____
3. **Do you have active vendor support?**
    - [ ] Yes, regular maintenance contract
    - [ ] Yes, on-call only
    - [ ] No current support
    - [ ] System is self-maintained
4. **What does your BAS currently control?**
    - [ ] Heating systems
    - [ ] Cooling systems
    - [ ] Ventilation
    - [ ] Lighting
    - [ ] Security/Access control
    - [ ] Other: _____

Part 2: System Assessment Categories
How the Scoring Works
For each category, you'll answer a series of questions and assign a score from 1 to 5:

- **5 - Excellent:** Modern, fully functional, exceeds expectations
- **4 - Good:** Adequate performance, only minor issues
- **3 - Fair:** Works but has noticeable limitations
- **2 - Poor:** Significant problems affecting operations
- **1 - Critical:** Serious issues requiring immediate attention

Be honest in your scoring – this assessment is only valuable if it reflects reality.

Category 1: User Interface and Accessibility
Can you easily monitor and control your building systems?
Answer these questions:

1. **How do you access your BAS?**
    - [ ] Desktop computer workstation only
    - [ ] Web browser from any computer
    - [ ] Mobile app or responsive web design
    - [ ] Multiple options available
2. **How would you rate the user interface?**
    - [ ] Modern, intuitive, easy to navigate (5)
    - [ ] Functional but dated appearance (3-4)
    - [ ] Difficult to use, requires extensive training (2)
    - [ ] Confusing or frustrating interface (1)
3. **Can you access the system remotely?**
    - [ ] Yes, securely from anywhere (5)
    - [ ] Yes, but setup is complicated (3)
    - [ ] Only from on-site locations (2)
    - [ ] No remote access available (1)
4. **How easy is it to find information you need?**
    - [ ] Very easy, intuitive navigation (5)
    - [ ] Takes some time but manageable (3-4)
    - [ ] Requires help or extensive searching (2)
    - [ ] Often cannot find what I need (1)
5. **Can you generate reports easily?**
    - [ ] Yes, customizable reports on demand (5)
    - [ ] Basic reports available (3)
    - [ ] Limited or difficult to generate (2)
    - [ ] No reporting capability (1)

Category 1 Score: _____ / 5 (average of your responses)
Notes/Issues:

Category 2: System Performance and Reliability
Does your BAS work consistently and effectively?

1. **How often do you experience system problems?**
    - [ ] Rarely or never (5)
    - [ ] Occasionally (monthly) (4)
    - [ ] Regularly (weekly) (2-3)
    - [ ] Frequently (daily) (1)
2. **When adjustments are made, how quickly does the system respond?**
    - [ ] Immediately (5)
    - [ ] Within minutes (4)
    - [ ] Takes hours (2)
    - [ ] Very slow or inconsistent (1)
3. **How would you rate temperature control accuracy?**
    - [ ] Consistently maintains setpoints (5)
    - [ ] Usually accurate, minor variations (4)
    - [ ] Noticeable temperature swings (2-3)
    - [ ] Frequent comfort complaints (1)
4. **Does the system stay online and operational?**
    - [ ] Always available (5)
    - [ ] Rare outages (4)
    - [ ] Regular communication losses (2)
    - [ ] Frequent offline controllers (1)
5. **How reliable is your equipment control?**
    - [ ] Equipment responds as expected (5)
    - [ ] Occasional control issues (3-4)
    - [ ] Frequent equipment problems (2)
    - [ ] Many devices not responding (1)

Category 2 Score: _____ / 5
Common Issues You've Noticed:

Category 3: Energy Management
Is your system helping you save energy and reduce costs?

1. **Can you view energy consumption data in your BAS?**
    - [ ] Yes, detailed real-time and historical (5)
    - [ ] Yes, basic information available (3)
    - [ ] Limited visibility (2)
    - [ ] No energy data visible (1)
2. **Does your system use scheduling to reduce energy waste?**
    - [ ] Advanced scheduling with occupancy sensors (5)
    - [ ] Basic time-of-day schedules (3-4)
    - [ ] Manual changes only (2)
    - [ ] Equipment runs continuously (1)

3. **Does your system optimize equipment operation?**
    - [ ] Yes, uses strategies like economizer mode (5)
    - [ ] Some optimization features (3)
    - [ ] Basic on/off control only (2)
    - [ ] No optimization (1)
4. **Can you identify energy waste or inefficiencies?**
    - [ ] System highlights issues proactively (5)
    - [ ] I can find problems with effort (3)
    - [ ] Very difficult to identify waste (2)
    - [ ] No visibility into efficiency (1)
5. **What has happened to your energy costs?**
    - [ ] Decreasing or stable (4-5)
    - [ ] Increasing moderately (3)
    - [ ] Increasing significantly (1-2)
    - [ ] Don't know (evaluate bills and rescore)

Category 3 Score: _____ / 5
Energy Concerns:

Category 4: Monitoring and Alarms
Does your system alert you to problems effectively?

1. **How does the system notify you of problems?**
    - [ ] Multiple methods (email, text, app) (5)
    - [ ] Email notifications (3-4)
    - [ ] Must log in to see alarms (2)
    - [ ] No alarm notifications (1)
2. **Are alarms helpful and actionable?**
    - [ ] Clear, specific, helpful messages (5)
    - [ ] Generally understandable (3-4)
    - [ ] Vague or confusing (2)
    - [ ] Too many nuisance alarms (1)
3. **Can you see historical trends and data?**
    - [ ] Yes, extensive trending capabilities (5)
    - [ ] Basic trending available (3)
    - [ ] Very limited historical data (2)
    - [ ] No trend data (1)
4. **How long is data stored?**
    - [ ] Years of data available (5)
    - [ ] Several months (3-4)
    - [ ] Only days or weeks (2)
    - [ ] Minimal or no history (1)

5. **Can you use data to troubleshoot problems?**
    - [ ] Yes, very helpful diagnostic tools (5)
    - [ ] Somewhat helpful (3)
    - [ ] Limited usefulness (2)
    - [ ] Data not useful for troubleshooting (1)

Category 4 Score: _____ / 5
Alarm/Monitoring Issues:

Category 5: System Age and Technology
Is your system up-to-date with current technology?

1. **System age (from your earlier answer):**
    - [ ] 0-5 years (5)
    - [ ] 5-10 years (4)
    - [ ] 10-15 years (3)
    - [ ] 15-20 years (2)
    - [ ] 20+ years (1)
2. **Are replacement parts readily available?**
    - [ ] Yes, current product line (5)
    - [ ] Available but may require lead time (3)
    - [ ] Difficult to source parts (2)
    - [ ] Parts obsolete or unavailable (1)
3. **Does the vendor still support your system?**
    - [ ] Full support and updates available (5)
    - [ ] Legacy support only (3)
    - [ ] Limited or no vendor support (1-2)
4. **Can your system integrate with other building systems?**
    - [ ] Open protocols, easy integration (5)
    - [ ] Some integration possible (3)
    - [ ] Proprietary, limited integration (2)
    - [ ] No integration capabilities (1)
5. **Does your system have modern features?**
    - [ ] Cloud connectivity, analytics, AI (5)
    - [ ] Modern but not cutting-edge (4)
    - [ ] Basic functionality only (2-3)
    - [ ] Very outdated capabilities (1)

Category 5 Score: _____ / 5
Technology Gaps:

Category 6: Security and Safety
Is your system protected against cyber threats?

1. **Does your system have password protection?**
    - [ ] Yes, strong authentication required (5)
    - [ ] Basic passwords (3)
    - [ ] Weak or shared passwords (2)
    - [ ] No password protection (1)
2. **Is the network secure?**
    - [ ] Isolated network with firewall (5)
    - [ ] Some security measures (3)
    - [ ] Connected to general network (2)
    - [ ] No network security (1)
3. **Are software updates applied regularly?**
    - [ ] Yes, kept current (5)
    - [ ] Occasionally updated (3)
    - [ ] Rarely or never updated (1-2)
4. **Do you have backup access if the system fails?**
    - [ ] Manual overrides on all equipment (5)
    - [ ] Some manual control available (3)
    - [ ] Limited backup options (2)
    - [ ] No backup controls (1)
5. **Can you identify who made changes to the system?**
    - [ ] Complete audit trail (5)
    - [ ] Some logging (3)
    - [ ] No tracking of changes (1)

Category 6 Score: _____ / 5
Security Concerns:

Category 7: Documentation and Support
Do you have the information and help you need?

1. **How complete is your system documentation?**
    - [ ] Comprehensive and current (5)
    - [ ] Basic documentation available (3)
    - [ ] Incomplete or outdated (2)
    - [ ] Little or no documentation (1)
2. **Is your staff adequately trained?**
    - [ ] Fully trained and confident (5)
    - [ ] Basic competency (3)
    - [ ] Minimal training (2)
    - [ ] No formal training (1)

3. **How quickly can you get help when needed?**
    - [ ] Immediate support available (5)
    - [ ] Support within 24 hours (4)
    - [ ] Slow response times (2-3)
    - [ ] No available support (1)
4. **Are control sequences documented?**
    - [ ] Fully documented and understood (5)
    - [ ] Partially documented (3)
    - [ ] Poorly documented (2)
    - [ ] No documentation (1)
5. **Do you have system drawings and diagrams?**
    - [ ] Complete as-built drawings (5)
    - [ ] Original drawings available (3)
    - [ ] Outdated drawings (2)
    - [ ] No drawings available (1)

Category 7 Score: _____ / 5
Documentation Gaps:

Part 3: Calculating Your Results
Overall System Score
Transfer your category scores below:

Category	Your Score
1. User Interface and Accessibility	_____ / 5
2. System Performance and Reliability	_____ / 5
3. Energy Management	_____ / 5
4. Monitoring and Alarms	_____ / 5
5. System Age and Technology	_____ / 5
6. Security and Safety	_____ / 5
7. Documentation and Support	_____ / 5
TOTAL	_____ / 35

Overall Average Score: _____ / 5 (divide total by 7)

Understanding Your Score

4.5 - 5.0: Excellent Your BAS is in great shape! Focus on maintaining current performance and planning for future enhancements. Consider:

- Regular system optimization reviews
- Staff training on advanced features
- Planning for next-generation upgrades (5-10 years)

3.5 - 4.4: Good Your system is functioning well with room for improvement. Recommended actions:

- Address lower-scoring categories first
- Plan selective upgrades over next 2-3 years
- Implement energy optimization strategies
- Enhance documentation and training

2.5 - 3.4: Fair Your system has significant limitations affecting performance. Priority actions:

- Develop a modernization roadmap
- Address critical performance and reliability issues
- Budget for major upgrades within 1-2 years
- Consider energy audits to quantify savings potential

1.5 - 2.4: Poor Your system has serious deficiencies requiring attention. Immediate actions:

- Document all issues and business impacts
- Prioritize safety and security concerns
- Develop business case for major system upgrade
- Consider interim solutions for critical problems

1.0 - 1.4: Critical Your system requires urgent attention. Take these steps now:

- Assess risks to operations and safety
- Identify immediate failure risks
- Fast-track replacement planning
- Consider temporary workarounds for high-risk issues

Identifying Your Priorities

Review your category scores and identify your weakest areas:

Your Lowest Scoring Categories:

1. _____ (Score: _____)
2. _____ (Score: _____)
3. _____ (Score: _____)

These should be your top priorities for improvement.

Part 4: Building Your Business Case

Quantifying the Impact

Now that you've identified issues, help your management understand the business impact:

Energy Waste

1. **Current annual energy cost:** $_____
2. **Estimated waste from inefficiencies:** ____%
    - Poor scheduling: 10-15%
    - No optimization: 15-25%
    - Equipment issues: 5-10%
3. **Potential annual savings:** $_____

Calculation example: If your annual energy cost is $100,000 and you estimate 20% waste, that's $20,000 per year in savings opportunity.

Maintenance Costs

1. **Annual maintenance/repair costs:** $_____
2. **Service calls related to BAS issues:** _____ calls/year
3. **Average cost per call:** $_____
4. **Total BAS-related maintenance:** $_____

Productivity Impact

1. **Number of occupant comfort complaints per month:** _____
2. **Staff time dealing with complaints (hours/month):** _____
3. **Hourly cost of staff time:** $_____
4. **Monthly cost of comfort issues:** $_____
5. **Annual cost:** $_____ (monthly × 12)

Risk Factors

Check all that apply:

- [ ] Risk of system failure affecting operations
- [ ] Cybersecurity vulnerabilities
- [ ] Inability to meet energy code requirements
- [ ] Negative impact on occupant satisfaction
- [ ] Equipment damage from poor control
- [ ] Difficulty attracting/retaining tenants

Solution Options and Costs

Based on your assessment, consider these typical improvement paths:

Option 1: Optimize Existing System

Best for: Scores of 3.5-4.4

Typical improvements:

- Control sequence updates
- Sensor calibration and additions
- Software updates
- Enhanced graphics and user interface
- Training for staff

Estimated cost range: $10,000 - $50,000 **Expected improvements:** 10-20% energy savings, better reliability

Option 2: Partial Modernization
Best for: Scores of 2.5-3.4
Typical improvements:

- Replace aging controllers
- Upgrade network infrastructure
- New user interface/workstations
- Add remote access capability
- Improve integration with other systems

Estimated cost range: $50,000 - $200,000 **Expected improvements:** 20-30% energy savings, significantly improved functionality

Option 3: Complete System Replacement
Best for: Scores below 2.5
Typical improvements:

- New controllers and field devices
- Modern network architecture
- State-of-the-art user interface
- Mobile access and cloud connectivity
- Full integration capabilities
- Advanced analytics

Estimated cost range: $200,000 - $500,000+ (varies greatly by building size) **Expected improvements:** 25-40% energy savings, modern functionality, improved reliability
Note: Costs are general estimates. Actual costs depend on building size, system complexity, and specific needs.

Return on Investment
Calculate simple payback period:
Total Investment Cost: $_____
Annual Savings:

- Energy savings: $_____
- Maintenance savings: $_____
- Productivity savings: $_____
- **Total annual savings:** $_____

Simple Payback Period: _____ years (Investment ÷ Annual Savings)
Additional Benefits (not easily quantified):

- Improved occupant comfort and satisfaction
- Reduced risk of system failure
- Better data for decision-making
- Enhanced building value
- Improved sustainability profile

Part 5: Presenting to Management
Executive Summary Template
Use this template to communicate your findings:

TO: [Building Owner/Management Team]

FROM: [Your Name, Title]

DATE: [Date]

RE: Building Automation System Assessment Results

EXECUTIVE SUMMARY
I have completed a comprehensive assessment of our building automation system. Based on this evaluation, I recommend [we consider improvements / we plan for modernization / we take immediate action].

Current System Overview:
- System age: [years]
- Manufacturer: [name]
- Overall assessment score: [X.X] out of 5.0

Key Findings:
Strengths:
- [List 2-3 things working well]

Areas of Concern:
- [List 3-5 most significant issues]
- [Include category scores for problem areas]

Business Impact:
Our current system limitations are costing the facility approximately:
- Energy waste: $[amount] per year
- Excess maintenance: $[amount] per year
- Productivity impacts: $[amount] per year

Total annual impact: $[amount]

Recommendation:
I recommend we [pursue Option 1/2/3] to address these issues. This approach would:
- [Key benefit 1]
- [Key benefit 2]
- [Key benefit 3]

Investment Required: $[amount]

Expected Annual Savings: $[amount]

Simple Payback Period: [X.X] years

Next Steps:

1. [e.g., Engage qualified BAS consultant for detailed evaluation]
2. [e.g., Obtain competitive proposals from vendors]
3. [e.g., Include funding in next fiscal year budget]
4. [e.g., Schedule meeting to discuss findings in detail]

I have prepared a detailed report with complete findings and am available to discuss this assessment at your convenience.

Supporting Materials to Include

When presenting to management, provide:

1. **This completed assessment** with all scores and notes
2. **Photos of system components** showing age/condition
3. **Recent utility bills** highlighting costs
4. **Comfort complaint log** if available
5. **System alarm reports** showing frequency of issues
6. **Comparison data** from similar buildings (if available)

Anticipating Questions

Be prepared to answer:

"Can we just keep repairing what we have?"

- Explain risks of continued aging
- Highlight increasing maintenance costs
- Note obsolescence and parts availability issues

"Can't we wait a few more years?"

- Show energy costs continuing to accumulate
- Explain risks of catastrophic failure
- Note that problems typically worsen over time

"Why should we invest in this vs. other building needs?"

- Present ROI calculation
- Highlight risk mitigation
- Explain impact on occupant satisfaction
- Note potential effect on building value

"How do we know the savings are real?"

- Reference industry benchmarks
- Cite case studies from similar buildings
- Offer to include performance guarantees in vendor contracts

---

Part 6: Next Steps

Engaging Professional Help

While this self-assessment provides valuable insights, consider engaging professionals for:

BAS Consultant/Engineer:

- Detailed technical evaluation
- Independent recommendations
- Specification development
- Project oversight

Energy Auditor:

- Quantify energy savings opportunities
- Identify utility rebates and incentives
- Validate your findings

When to call Fuller Consulting and Support Services:

- Need expert evaluation and validation of your findings
- Require detailed specifications for upgrades
- Want assistance with vendor selection
- Need project management for implementation
- Desire ongoing remote monitoring and support

Developing an Action Plan

Based on your assessment results:

Immediate (0-3 months):

- [ ] Present findings to management
- [ ] Address any critical safety/security issues
- [ ] Begin budget planning process
- [ ] Research potential vendors or consultants

Short-term (3-12 months):

- [ ] Obtain professional evaluation if needed
- [ ] Develop detailed specifications
- [ ] Obtain competitive proposals
- [ ] Identify funding sources
- [ ] Plan implementation timeline

Long-term (1-3 years):

- [ ] Execute modernization plan
- [ ] Commission and verify new systems
- [ ] Train staff on improvements
- [ ] Document new systems
- [ ] Schedule follow-up assessments

Conclusion

You've Taken an Important First Step

By completing this assessment, you now have:

✓ A clear understanding of your BAS condition ✓ Identified areas requiring attention ✓ Quantified the business impact ✓ Foundation for a business case ✓ Roadmap for improvement

Remember

- **Every building is unique** – your specific needs may vary
- **Technology constantly evolves** – what's modern today will age over time
- **Regular assessment is important** – repeat this process every 2-3 years
- **Professional guidance adds value** – consider expert assistance for major decisions
- **Taking Action**

The most important thing now is to **act on your findings**. Even small improvements can generate significant benefits. Don't let this assessment sit unused – share it with your management team and begin the conversation about improving your building automation system.

Additional Resources

Helpful Organizations

ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers): www.ashrae.org
BACnet International: www.bacnetinternational.org
Building Owners and Managers Association (BOMA): www.boma.org

Industry Benchmarks

ENERGY STAR Portfolio Manager: Track and compare building energy performance
DOE Building Performance Database: Compare your facility to similar buildings

Code References

- **ASHRAE 90.1**: Energy Standard for Buildings
- **ASHRAE 62.1**: Ventilation for Acceptable Indoor Air Quality

---

About Fuller Consulting and Support Services

Fuller Consulting and Support Services (FCSS) specializes in remote project management for MEP systems and building automation system review and assessment. Our team of experienced professionals helps facility owners and managers optimize their building systems, improve energy efficiency, and plan strategic modernization projects.

Our Services Include:

- Comprehensive BAS assessments and audits
- Remote system monitoring and support
- MEP project management
- System modernization planning and implementation
- Energy optimization services
- Staff training and documentation

Contact Us: For professional assistance with your building automation system needs, contact Fuller Consulting and Support Services.

Disclaimer

This guide is provided for informational purposes only and is intended to help facility managers conduct preliminary assessments of their building automation systems. While we have made every effort to ensure the accuracy and usefulness of this information, Fuller Consulting and Support Services (FCSS) makes no warranties, expressed or implied, regarding the completeness, accuracy, or applicability of this guide to any specific situation.

Important Considerations:

- This self-assessment tool is not a substitute for professional evaluation by qualified engineers or consultants
- Building automation systems vary significantly in complexity, and your specific situation may require specialized expertise
- Cost estimates and savings projections provided are general ranges and may not reflect actual costs or savings for your facility
- Decisions regarding system modifications or replacements should be made in consultation with qualified professionals and in accordance with applicable codes and regulations
- FCSS assumes no liability for decisions made or actions taken based on information in this guide

Professional Evaluation Recommended: We strongly recommend engaging qualified building automation system professionals for detailed technical evaluations, system design, specification development, and project implementation. This guide should serve as a starting point for understanding your system's condition and needs.

No Warranty: FCSS provides this guide "as is" without warranty of any kind, either expressed or implied, including but not limited to implied warranties of merchantability or fitness for a particular purpose.

For professional building automation system assessment and support services, please contact Fuller Consulting and Support Services directly.

Document Version: 1.0 **Published:** October 2025 **For questions or feedback on this guide, please contact Fuller Consulting and Support Services.**