



**STATE OF NEVADA**  
**Department of Administration**  
**Division of Human Resource Management**

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**CLASS SPECIFICATION**

<u>TITLE</u>	<u>GRADE</u>	<u>EEO-4</u>	<u>CODE</u>
<b>BUILDING AUTOMATION SYSTEM SUPERVISOR</b>	<b>38</b>	<b>C</b>	<b>9.401</b>
<b>BUILDING AUTOMATION SYSTEM SPECIALIST III</b>	<b>36</b>	<b>C</b>	<b>9.403</b>
<b>BUILDING AUTOMATION SYSTEM SPECIALIST II</b>	<b>34</b>	<b>C</b>	<b>9.405</b>
<b>BUILDING AUTOMATION SYSTEM SPECIALIST I</b>	<b>32</b>	<b>C</b>	<b>9.406</b>
<b>BUILDING AUTOMATION SYSTEM TRAINEE</b>	<b>30</b>	<b>C</b>	<b>9.409</b>

**SERIES CONCEPT**

Building Automation System Supervisors and Specialists within the Nevada System of Higher Education (NSHE) analyze, design, install, implement, monitor, evaluate, troubleshoot, and maintain the campus-wide building automation controls system for NSHE facilities. Incumbents ensure all equipment, including mechanical, fire and life safety, lighting, energy management, security, and all other ancillary equipment within the NSHE building controls system operate at the highest efficiency to maintain proper equipment functionality and occupant comfort and safety.

Monitor, detect, and resolve communications between controllers, direct digital controls, routers, system alarms, software, and instrumentation utilizing specialized software and tools; integrate and test heating, ventilation, air conditioning, refrigeration, plumbing, energy management, laboratory, lighting, fire and life safety, access control, security systems, building control equipment, and building automation programming issues using industry standard test equipment and software tools; formulate corrective action to resolve complex building automation and system failures; wire instruments, sensors, relays, and controllers.

Maintain building automation systems server, databases, and related components; maintain records of system operating conditions, maintenance performed, and equipment malfunctions in accordance with university policies and procedures and regulatory requirements; back-up and recovery of building automation data; collect and analyze data to determine the performance of the facility; provide finding reports; convert, transfer, and interface data within and between building automation system databases; establish client access, interfaces, and data management; ensure compliance with federal, State, and local statutes and regulations, university policies, and equipment manuals; and possess knowledge, skills, and abilities associated with the trades, building codes, and building systems.

Create, modify, and oversee the installation, replacement, programming, and maintenance of building automation systems; make recommendations to management; provide technical analysis and consultation on facility performance improvements, energy management, and building integration; configure system set points; install and commission building automation systems to ensure controllers and equipment are operating within designed scope; interpret and utilize design and construction documents such as engineering blueprints, schematic diagrams, design plans, other technical drawings, test and balance reports, submittals, and sequence of operations.

Administer building automation system security policies including access control, continuity of operations and disaster planning, and physical, operational, and server security; establish and maintain security through real-time device visibility and comprehensive risk management across building systems; assess vulnerabilities and exposures; conduct regular audits of hardware, software, and processes to identify any deficiencies or abnormalities indicating possible security breaches into the building automation system.

Perform related duties as assigned.

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## CLASS CONCEPTS

**Building Automation System Supervisor:** Under administrative direction and in addition to performing the full range of duties described in the series concept, as well as duties performed at the lower levels, incumbents perform the more complex duties related to the systems server, equipment network, and database administration specific to building automation systems. Incumbents supervise a staff of Building Automation System Specialists to include performance evaluations, work performance standards, scheduling, work assignment and review, training, and disciplinary actions; and may supervise skilled, semi-skilled, and administrative staff as assigned.

Incumbents develop and monitor the section's budget; prepare budget requests for equipment maintenance and replacement; conduct equipment, supplies, and costs research; order and maintain supply inventories according to State regulations and university policies; prepare equipment specifications, cost, time, and material estimates, and criteria for service contracts; oversee the work of contractors performing major repairs on or making changes to the building automation system's equipment network and facility control panel.

Incumbents also act as the university liaison during building automation projects and major capital improvements; provide system characteristics to engineering or management for the development of major system modification projects; establish and interpret policies and facility requirements; reference and implement federal, State, and local regulations and university policies and procedures; evaluate the effectiveness of controls network; establish work priorities and preventative maintenance schedules; ensure planned maintenance, work orders, and time and leave records comply with established standards; perform field-oriented plan checks; develop short and long range section goals; prepare reports and maintain records related to work activities.

The Building Automation System Supervisor is distinguished from the lower-level Building Automation System Specialists by the supervision of staff; scope of administrative duties; overall responsibility for setting section policies and project management; budget responsibilities; and planning and scheduling maintenance and repair for the university building automation system's equipment network and facility control panel.

**Building Automation System Specialist III:** Under limited supervision, incumbents perform the full range of duties described in the series concept. In addition, incumbents are responsible for developing work plans; assisting with section priorities; providing technical assistance to solve building automation controls system problems; creating, modifying, and programing server system graphical representation; and either:

- 1) function as a lead worker for lower-level Building Automation System Specialists and contractors on a regular basis campus-wide, to include assigning, supervising, and reviewing work; providing work direction, training, and input to performance evaluations for Building Automation System Specialists; functioning as a technical expert; must possess a greater depth of knowledge, skills, and abilities associated with the trades, building codes, and building systems; and performing complex building automation system assignments, or
- 2) spend the preponderance of time performing advanced building automation system programming, setting up system software, communication protocols, and server/network systems, and other operation responsibilities.

This is the advanced journey level in the series.

**Building Automation System Specialist II:** Under general supervision, incumbents perform the full range of duties described in the series concept. This is the journey level in the series.

**Building Automation System Specialist I:** Under general supervision, incumbents either:

- 1) perform some of the duties described in the series concept in a more limited manner. This is the sub-journey level in the series. Positions are permanently allocated at this level and there is no progression

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### **CLASS CONCEPTS (cont'd)**

#### **Building Automation System Specialist I: (cont'd)**

- 1) (cont'd) to the next level in the series, or
- 2) continue to receive training in performing the duties described in the series concept. This is the continuing trainee level in the series and progression to the next level in the series may occur upon attainment of the required certification, meeting minimum qualifications, satisfactory performance, and with the recommendation of the appointing authority.

**Building Automation System Trainee:** Under close supervision of the Building Automation System Supervisor, incumbents receive training in performing some of the duties described in the series concept. This is the trainee level in the series and progression to the next level in the series may occur upon attainment of the required certification, meeting minimum qualifications, satisfactory performance, and with the recommendation of the appointing authority.

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### **MINIMUM QUALIFICATIONS**

#### **SPECIAL REQUIREMENTS:**

- \* A valid driver's license or evidence of equivalent mobility is required at the time of appointment and as a condition of continuing employment.
- \* Positions require a pre-employment criminal history check and fingerprinting.

#### **INFORMATIONAL NOTE:**

- \* Some positions may require specialized experience certification which will be identified at the time of recruitment.

### **BUILDING AUTOMATION SYSTEM SUPERVISOR**

**EDUCATION AND EXPERIENCE:** Graduation from high school or equivalent education and five years of experience including one year of advanced programming such as fault detection diagnostics or programming complex building automation systems such as large mechanical systems (e.g., central energy plants, chiller loops) and commissioning, validating, and calibrating building automation systems assets; one year of experience training and coordinating the work of others; **OR** Associate's degree from an accredited college or university in computer science, management information systems, construction, engineering, occupational safety, or related field and four years of experience as described above; **OR** one year of experience as a Building Automation System Specialist III in Nevada State service; **OR** an equivalent combination of education and experience as described above. (See Special Requirements and Informational Note)

**ENTRY LEVEL KNOWLEDGE, SKILLS, AND ABILITIES** (required at time of application):

**Detailed knowledge of:** principles, practices, procedures, and tools required to design, analyze, test, modify, and maintain building automation software and programs; communications hardware such as routers and sub-routers; database and operating system performance tuning and monitoring; database backup and recovery scenarios and methodologies; software installation, configuration, and maintenance. **Working knowledge of:** budget preparation and control; project management; quality control; system file and application servers; capacity planning techniques; performance monitoring principles and related systems; various building automation software products and their interrelationships; vendor procedures for applying

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### **MINIMUM QUALIFICATIONS (cont'd)**

#### **BUILDING AUTOMATION SYSTEM SUPERVISOR (cont'd)**

ENTRY LEVEL KNOWLEDGE, SKILLS, AND ABILITIES (required at time of application): (cont'd)  
 maintenance and temporary fixes. **General knowledge of:** supervisory principles and techniques. **Ability to:** define complex problems, select the best course of action, assess costs, and present alternatives; analyze and diagnose operational hardware and software problems occurring in the building automation environment; anticipate and plan for future building automation system technologies; assign work to and train subordinate staff; develop and prioritize task lists and resolve problems; configure and deploy routers; present and implement system design recommendations/changes to management; provide technical training, direction, and leadership; plan, organize, and direct projects; *and all knowledge, skills, and abilities required at the lower levels.*

FULL PERFORMANCE KNOWLEDGE, SKILLS, AND ABILITIES (typically acquired on the job):  
**Working knowledge of:** personnel administration. Ability to: train, supervise, and evaluate the performance of assigned personnel.

#### **BUILDING AUTOMATION SYSTEM SPECIALIST III**

EDUCATION AND EXPERIENCE: Graduation from high school or equivalent education and four years of experience in building automation systems including one year of journey level experience which included programming such as fault detection diagnostics or programming complex building automation systems such as large mechanical systems (e.g., central energy plants, chiller loops) and commissioning, validating, and calibrating building automation systems assets; **OR** Associate's degree from an accredited college or university in computer science, management information systems, construction, engineering, occupational safety, or related field and three years of experience as described above; **OR** one year of experience as a Building Automation System Specialist II in Nevada State service; **OR** an equivalent combination of education and experience as described above. *(See Special Requirements and Informational Note)*

ENTRY LEVEL KNOWLEDGE, SKILLS, AND ABILITIES (required at time of application):  
**Detailed knowledge of:** the programming building automation software and computer operating systems including functions, schedules, workflows, and processes; principles of operation, capabilities, and limitations of a building automation system. **Working knowledge of:** the principles, practices, procedures, techniques and tools required to design, analyze, modify, and maintain building automation systems software and programs; theory behind the BACnet and Modbus protocol and the seamless integration of third-party BACnet and Modbus devices into a building automation system; the design, development, and commissioning of building automation systems; diagnostic procedures to verify systems; principles of operation, capabilities, and limitations of a multi-programming building automation system and related equipment in order to produce the final work product. **Ability to:** identify and utilize programming techniques; utilize naming standards to create a logic library; recommend hardware to solve system issues; verify router configuration and optimize routes; analyze problems of considerable complexity; utilize software to read and write BACnet and Modbus objects while following a sequence of operations to incorporate the objects into a building automation system; maintain effective working relationships with others; provide advanced technical consultation and training; recommend and implement system changes and interpret plans, specifications, and building codes to select the proper hardware components of a building automation system to fulfill the project requirements; install system software and configure servers; create documentation for depicting a building automation system architecture and indicate building automation system devices addressing requirements; *and all knowledge, skills, and abilities required at the lower level.*

FULL PERFORMANCE KNOWLEDGE, SKILLS, AND ABILITIES (typically acquired on the job):  
*(These are identical to the Entry Level Knowledge, Skills, and Abilities required for Building Automation System Supervisor.)*

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### **MINIMUM QUALIFICATIONS (cont'd)**

#### **BUILDING AUTOMATION SYSTEM SPECIALIST II**

**EDUCATION AND EXPERIENCE:** Graduation from high school or equivalent education and three years of experience programming building automation systems and commissioning, validating, and calibrating building automation systems assets; **OR** Associate's degree from an accredited college or university in computer science, management information systems, construction, engineering, occupational safety, or related field and two years of experience as described above; **OR** one year of experience as a Building Automation System Specialist I in Nevada State service; **OR** an equivalent combination of education and experience as described above. *(See Special Requirements and Informational Note)*

**ENTRY LEVEL KNOWLEDGE, SKILLS, AND ABILITIES** (required at time of application):

**Working knowledge of:** programming building automation software and computer operating systems; the principles of operation, capabilities, and limitations of a building automation system; building automation systems programming languages and techniques. **General knowledge of:** the techniques and tools required to design, analyze, modify, and maintain building automation software and programs; setting up and troubleshooting building automation systems; and creating a secure building automation system site. **Ability to:** read and understand mechanical schematics, building blueprints, and technical manuals; test and validate building automation systems; create control programs and logic symbols; choose appropriate action; work effectively on projects with overlapping deadlines; communicate changing priorities; monitor device utilization; interpret information security policies; install building automation workstations; troubleshoot programming, hardware, and software; *and all knowledge, skills, and abilities required at the lower level.*

**FULL PERFORMANCE KNOWLEDGE, SKILLS, AND ABILITIES** (typically acquired on the job):

*(These are identical to the Entry Level Knowledge, Skills, and Abilities required for Building Automation System Specialist III.)*

#### **BUILDING AUTOMATION SYSTEM SPECIALIST I**

**EDUCATION AND EXPERIENCE:** Graduation from high school or equivalent education and two years of experience which included working with an automation system with components such as instrumentation, direct digital controllers, servers, and computers; **OR** Associate's degree from an accredited college or university in computer science, management information systems, construction, engineering, occupational safety, or related field and one year of experience as described above; **OR** one year of experience as a Building Automation System Trainee in Nevada State service; **OR** an equivalent combination of education and experience as described above. *(See Special Requirements and Informational Note)*

**ENTRY LEVEL KNOWLEDGE, SKILLS, AND ABILITIES** (required at time of application):

**General knowledge of:** the practices and procedures common to the building automation field; basic elements of building automation to monitor systems; program and operate specialized software on a personal computer for monitoring local and remote building environments; preparing data charts and summaries; theories, principles, and concepts of building automation systems. **Ability to:** download and install program controls and system integration; properly and safely use a variety of handheld electric diagnostic tools; understand power and grounding requirement; test and analyze input and output signals common to building automation controllers; identify key components of proper system wiring installations; replace building automation controllers; download and commission the building automation controller program; *and all knowledge, skills, and abilities required at the lower level.*

**FULL PERFORMANCE KNOWLEDGE, SKILLS, AND ABILITIES** (typically acquired on the job):

*(These are identical to the Entry Level Knowledge, Skills, and Abilities required for Building Automation System Specialist II.)*

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### MINIMUM QUALIFICATIONS (cont'd)

#### **BUILDING AUTOMATION SYSTEM TRAINEE**

**EDUCATION AND EXPERIENCE:** Graduation from high school or equivalent education and one year of experience utilizing the fundamentals of typical computer-based building automation system assets such as, air handlers, fan cooling units, cooling and heating systems, fire/smoke dampers, smoke detectors, lighting panels, security doors, and security cameras; **OR** Associate's degree from an accredited college or university in computer science, management information systems, construction, occupational safety, or related field; **OR** an equivalent combination of education and experience as described above. *(See Special Requirements and Informational Note)*

**ENTRY LEVEL KNOWLEDGE, SKILLS, AND ABILITIES** (required at time of application):

**General knowledge of:** sources of information, research techniques, and problem-solving methods. **Ability to:** communicate effectively both verbally and in writing; establish and maintain effective working relationships with others; analyze data and reach logical conclusions; and read technical information.

**FULL PERFORMANCE KNOWLEDGE, SKILLS, AND ABILITIES** (typically acquired on the job):

*(These are identical to the Entry Level Knowledge, Skills, and Abilities required for Building Automation System Specialist I.)*

This class specification is used for classification, recruitment, and examination purposes. It is not to be considered a substitute for work performance standards for positions assigned to this class.

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ESTABLISHED:	10/20/23UC	10/20/23UC	10/20/23UC	10/20/23UC	10/20/23UC