



**26 5100 –
Interior Lighting**

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Last Update: January 18, 2018

- A. Approval for lighting fixture selections, applications and controls are the responsibility of BSU Engineering. BSU Engineering will work with the consultant and with BSU architecture staff for fixture selections but BSU Engineering has the final say on fixture selection and application.
- B. In general Ball State has migrated to LED interior lighting. LED source is preferred over fluorescent for most fixture types if project budget allows. Do not specify incandescent lamps or fixtures.
- C. Where fluorescent is the only option or only affordable option utilize 80 CRI, 3500K lamps. Typically "835" series with Advance or GE ballasts only.
- D. Prefer lighting controls be as simple as possible. Do not use central lighting control panels, relay panels or any controls that require complex programming. Do not control lighting via the BAS or BMS system unless directed by BSU Engineering.
- E. Prefer the use of infrared sensor technology over the use of ultrasonic or dual technology. We have had issues with feedback and interference with the newer digital hearing aids and ultrasonic or dual technology sensors used by our students and staff. Do not use ultrasonic technology unless specifically directed to by BSU Engineering.
- F. Renovation projects on buildings built prior to 1978 are exempt from the requirements of the Indiana Energy Code. In these buildings we prefer to use low voltage dimmable LED fixtures without sensors, especially in private offices.
- G. BSU typically uses Leviton IP710-DL low voltage dimmers to control LED fixtures with 0-10V dimming capability where automatic shut-off is not required.
- H. Where energy code requirements must be met, we prefer to operate in "vacancy mode" in most spaces (offices, classrooms, conference rooms, breakrooms, lounges - basically everywhere except for corridors and restrooms). That is, lights are manually turned on and kept on by the motion sensors. Lights are automatically or manually turned off if no motion is sensed within a 30 minute period. Lights must be manually turned back on.
- I. In offices and small conference rooms a Lutron MS-Z101-V or MS-Z101 set in vacancy mode or approved equal wall mounted combination IR vacancy sensor and 0-10V dimmer switch is our preferred option with white being the preferred color. These combination wall sensor/dimmer switches are capable of 3 way switching operation where required when used in combination with a standard 3 way line voltage switch. The wall box sensor/dimmer solution is preferred in smaller spaces over power packs and ceiling sensors as they are much simpler and less expensive.
- J. For corridors and restrooms occupancy mode is preferred, ceiling mounted passive infrared occupancy sensors set on the highest sensitivity and longest time delay duration are preferred.



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- K. For classrooms single zone control and #18/2 low voltage wiring is preferred. In some instances dual or two lighting zones may be requested. Do not specify controls that utilize CAT5 or 6 or similar cabling or require the use of special communications protocols, programmers, software or programming tools. Our standard classroom control scheme provides for 3-way switching but dimming only from the switch near the teaching station. Refer to the BSU Classroom Lighting Control drawing available on our website for example wiring diagrams and acceptable manufacturers.
- L. Any type of automatic lighting controls or daylight harvesting schemes proposed by the consultant must be approved by BSU Engineering prior to including in the project.
- M. In larger conference or meeting rooms where several zones and scenes are required control solutions similar to the Lutron Grafik Eye may be considered with prior approval from BSU Engineering.
- N. We require at least three (3) fixture manufacturers be listed with complete catalog numbers on the fixture schedule such that at least three (3) competing fixture packages can be bid. We work with all the major lighting vendors and encourage more than three be listed whenever possible. In the event there is a specialty fixture type desired or required by the University for a special application that fixture shall be excluded from the schedule and will be Owner furnished/Contractor installed, however, every effort will be made to avoid this situation.