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What Executives Need to Know to Navigate New Energy Codes & Regulations

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Trends in Energy Codes & Regulations

- Building Code Requirements and Designs for Construction/Renovation Projects**
 - Building envelope considerations
 - Building HVAC
 - Building Lighting
- Local, State & Federal Laws/Regulations**
 - Energy reporting and benchmarking
 - EPA ENERGY STAR Portfolio Manager®
 - What the future may hold?



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Building Code Requirements & Designs for Construction/Renovation Projects

Codes/Regulations

- ASHRAE 90.1 & International Energy Conservation Code
- US Green Building Council – LEED

Building Envelopes

- Continuous exterior insulation
 - Keeps wall framing warmer and close to interior temperature
 - Shifts the dew point outside the framing cavity insulation
 - Eliminates thermal bridging caused by gaps in insulation



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University of Mississippi Student Housing



 

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StoryPoint of Waterville, Waterville, OH



 

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Building Envelope Considerations

Exterior Building Envelope Commissioning

- Ensures building performs as designed
- Review of documents during design
- Laboratory testing of mockup wall and envelope systems
- Field inspections during construction to ensure design is implemented and construction details are correct

 

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Roofing Considerations

- Cool roofing alternatives**
 - Reflective coatings
 - Light colored aggregates
 - Light colored membranes
- Vegetative roof systems**
 - Increased roof life span
 - Reduced energy consumption
 - Improved aesthetics
 - Improved drainage



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Green Roofs



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Green Roofs – Tray Systems



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Building Mechanical/ Lighting Considerations

- ❑ **Increased energy efficiency of HVAC equipment**
 - Higher SEER ratings
 - Variable fan speed control
 - Requirements for direct digital controls (DDC)
 - Hot water controls
- ❑ **Lighting**
 - Automatic shut-off controls
 - Increased efficiency of fixtures - LED
 - Use of task lighting
 - Incorporation of natural light



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Energy Reporting & Benchmarking

- Cities and states are enacting laws/regulations related to energy reporting and benchmarking for existing buildings
- Normally applies to any commercial building over 5,000 sf. This includes senior living facilities



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Energy Reporting & Benchmarking

- Requires building owners to track and record energy usage using such commercially available software packages as the EPA ENERGY STAR Portfolio Manager®
- Report the findings in different ways such as per square foot and the calculation of ENERGY STAR scores and mandating reduction in energy consumption and usage over period of time after initial benchmarking



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Energy Reporting & Benchmarking

- The stated goal of most jurisdictions is to increase the energy awareness of the public related to commercial buildings and how a building compares to others of similar size and usage
- Some cities and states are taking the next step of mandating reduction in energy consumption and usage over period of time after initial benchmarking




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Energy Reporting & Benchmarking

- ENERGY STAR Portfolio Manager® is an online tool you can use to measure and track energy and water consumption, as well as greenhouse gas emissions
- Use it to benchmark the performance of one building or a whole portfolio of buildings




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Energy Reporting & Benchmarking





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Energy Reporting & Benchmarking

Master Information
 What's required to use Master
 • 12 consecutive, complete months of data of your energy or water to calculate continuously.
 • At least one instance of your energy or water to be measured (e.g. being a private home).

Master Information

Master Name or ID _____
 Master Type (e.g. Microgrid) _____
 Master City/State _____
 Master Energy Reporting Period _____
 Master Water Reporting Period _____

Master Audit

Master Name/ID	Master Type	Energy/Utility	Water/Utility

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Energy Savings Initiatives You Can Take Now

Building Envelope

- Replace old windows with newer, more energy efficient windows with low-emissivity coatings
- Consider adding layer of EPS insulation and housewrap to exterior of building when replacing siding or other exterior finishes
- Perform thermal scan of roofs to identify areas of wet insulation and replace insulation and older membranes with newer, more reflective membranes
- Re-caulking joints around all windows and doors

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Energy Savings Initiatives You Can Take Now

Mechanical/HVAC

- Perform overall building energy audit
- Replace older A/C units, boilers, etc. with newer, more energy efficient equipment
- Update controls to direct digital controls (DDC) and add variable frequency drives to motors
- Re-commission building HVAC and water systems
- Replace older plumbing fixtures with newer, low flow and water usage fixtures

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Energy Savings Initiatives You Can Take Now

Electrical/Lighting

- Change older T-12 interior fluorescent fixtures to T-8, T-5, or LED (retrofit existing fixtures with new lamps and ballasts)
- Change incandescent fixtures to CFL or LED
- Install LED exit signs
- Install lighting controls/occupancy sensors (infrared and ultrasonic)
- Replace older metal halide site light fixtures with LED
- Consider adding solar power alternatives

 
